Mini System **FW-C700/22/37**

Service
Service
Service

Service Manual

COMPACT disc DIGITAL AUDIO

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CLASS 1
LASER PRODUCT

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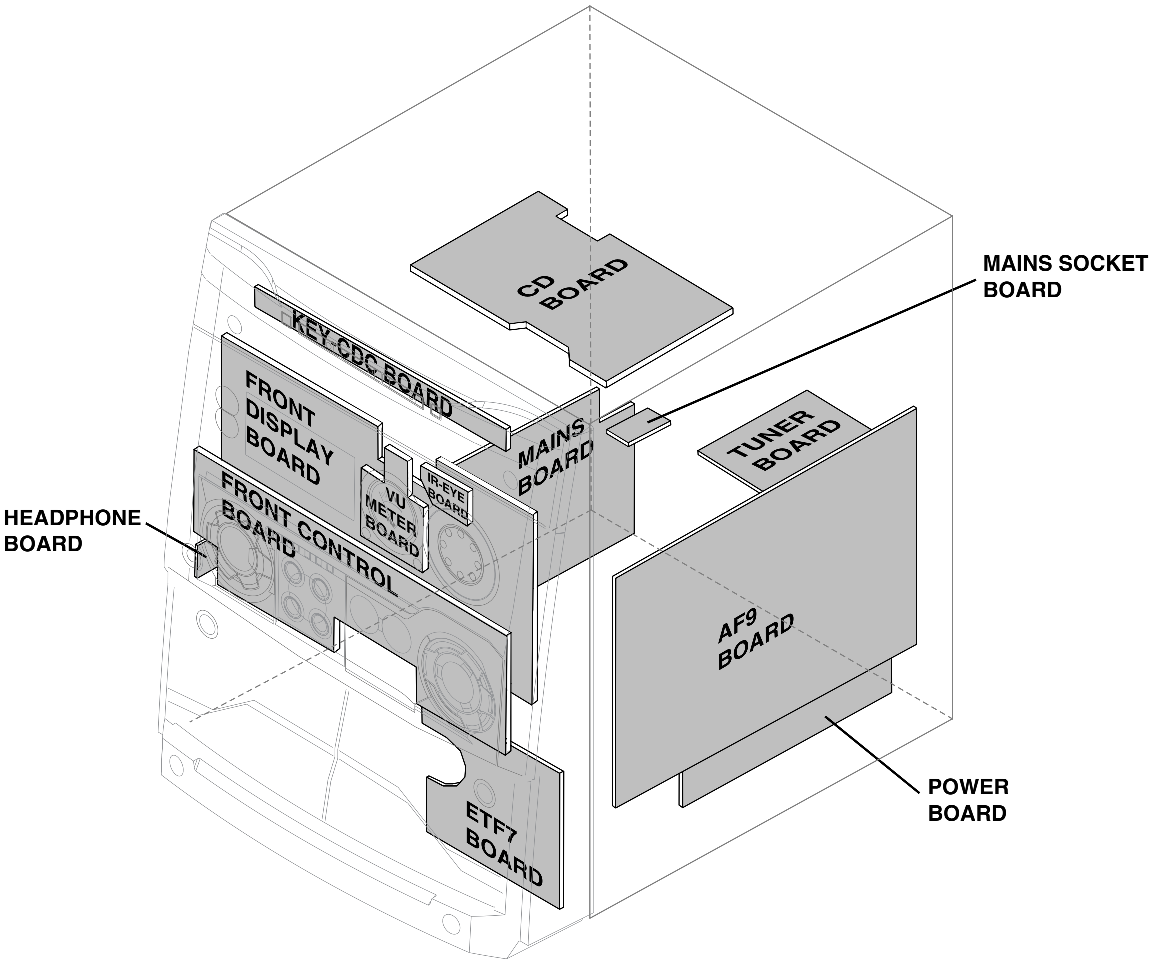
GB 3139 785 22640

PHILIPS

LOCATION OF PRINTED CIRCUIT BOARDS


CD BOARD
MAINS SOCKET BOARD
KEY-CDC BOARD
FRONT DISPLAY BOARD
MAINS BOARD
TUNER BOARD
IR-EYE BOARD
VU METER BOARD
HEADPHONE BOARD
FRONT CONTROL BOARD
AF9 BOARD
POWER BOARD
ETF7 BOARD

VERSION VARIATIONS:

Type /Versions:	FW-C700									
Features & Board in used:	/22	/37								
Aux in /CDR in	x	x								
Line Out	x	x								
Surround Out										
Subwoofer Out										
Digital Out	x	x								
Matrix Surround										
CD Text										
Dolby B										
RDS	x									
News	x									
Dolby Pro Logic (DPL)										
Incredible Surround	x	x								
Karaoke Features										
Voltage Selector										
ECO Power Standby (Clock Display Off)	x									
ECO6 Tuner Board - Systems Non-Cenelec		x								
ECO6 Tuner Board - Systems Cenelec	x									
Center/Surround Channel										
ETF7 ND/DD/FR - Chapter 9	x	x								
ETF7 DB/DD/FR - Chapter 9A										

SPECIFICATIONS

GENERAL:

Mains voltage : 110-127V/220-240V Switchable for /21/21M
120V for /37
220V for /33
220-230V for /22/34
230-240V for /30
Mains frequency : 50/60Hz
Power consumption : < 1W at ECO Power Standby
: 15W at Standby
: 100W at Active
Clock accuracy : < 4 seconds per day
Dimension centre unit : 265 x 310 x 390mm

TUNER:

FM

Tuning range : 87.5-108MHz
65.81-74MHz for /34 1)
Grid : 50kHz (& 30kHz for /34)
100kHz for /37
IF frequency : 10.7MHz ± 25kHz
Aerial input : 75Ω coaxial
300Ω click fit for /37
Sensitivity at 26dB S/N : < 7µV
Selectivity at 600kHz bandwidth : > 25dB
Image rejection : > 25dB
Distortion at RF=1mV, dev. 75kHz : < 3%
-3dB Limiting point : < 8µV
Crosstalk at RF=1mV, dev. 40kHz : > 18dB

MW

Tuning range : 531-1602kHz
530-1700kHz for /21/21M/37
Grid : 9kHz
10kHz for /21/21M/37
IF frequency : 450kHz ± 1kHz
Aerial input : Frame aerial
Sensitivity at 26dB S/N : < 4.0mV/M
Selectivity at 18kHz bandwidth : > 18dB
IF rejection : > 45dB
Image rejection : > 28dB
Distortion at RF=50mV, m=80% : < 5%

LW

Tuning range : 153-279kHz /22
Grid : 3kHz
IF frequency : 450kHz ± 1kHz
Aerial input : Frame aerial
Sensitivity at 26dB S/N : [< 7.0mV/M]
Selectivity at 18kHz bandwidth : [> 24dB]
IF rejection : [> 30dB]
Image rejection : [> 30dB]
Distortion at RF=50mV, m=80% : [< 5%]

AMPLIFIER:

Output power (6Ω, 1kHz, 10% THD)
L & R : 2 x 60W RMS /22

Output power (6Ω, 60Hz-12.5kHz, 10% THD)
L & R : 2 x 50W FTC /37

Frequency response within -3dB : 40Hz-20kHz
Incredible Surround : ON/OFF
WOOX : Level 1, 2, 3 & OFF
Digital Sound Control (DSC) : Digital, Rock, Pop, Newage, Classic, Electric
Virtual Ambience Control (VAC) : Hall, Concert, Cinema, Disco, Arcade, Cyber

Input sensitivity
Aux in : 500mV ± 3dB at 1kHz
CDR in : 1V ± 3dB at 1kHz
Output sensitivity
Line out (Left/Right) : 500mV ± 2dB at 22kΩ
Digital out : IEC 958, 44.1kHz
Headphone output at 32Ω : 15mW ± 1dB

CASSETTE RECORDER:

Number of track : 2 x 2 stereo
Tape speed : 4.76 cm/sec ± 2%
Wow and flutter : < 0.4% DIN
Fast-wind/Rewind time C60 : 130 sec
Bias system : 75kHz ± 10kHz
Rec/Pb frequency response within 8dB : 80Hz - 12.5kHz
Signal to Noise Ratio (Type I) : > 48dBA

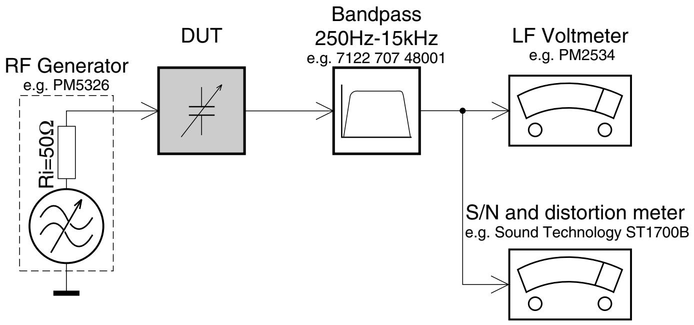
COMPACT DISC:

Measurement done at output conn. of the CDC module.
Frequency response : < ±1.5dB for 20Hz-20kHz
Output Voltage (in Vrms) : 550mV ± 2dB unloaded
Signal to Noise Ratio (A-weighted) : > 80dBA
Distortion at 1kHz : < 0.003%
Channel Unbalance : < ±1dB
Channel Separation (1kHz) : >60dB
De-emphasis : 0 or 15/50 mS (Switched by subcode on the disc)

[....] Values indicated are for "ECO6 Cenelec Board" only.
1) Default setting is OFF, to switch on please refer page 3-4.

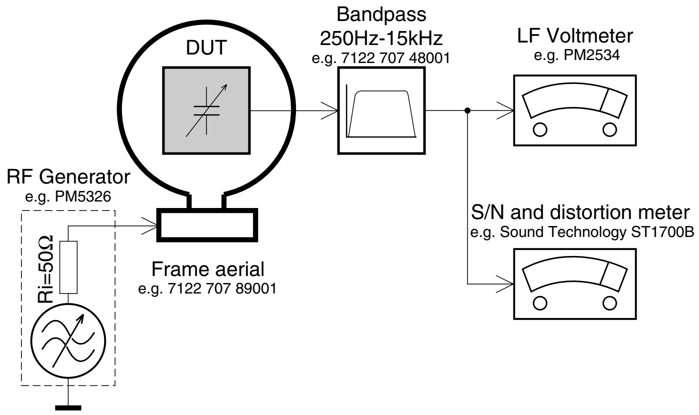
MEASUREMENT SETUP

Tuner FM


RF Generator
e.g. PM5326
Ri=50Ω
DUT
Bandpass
250Hz-15kHz
e.g. 7122 707 48001
LF Voltmeter
e.g. PM2534
S/N and distortion meter
e.g. Sound Technology ST1700B

Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilottone (19kHz, 38kHz).

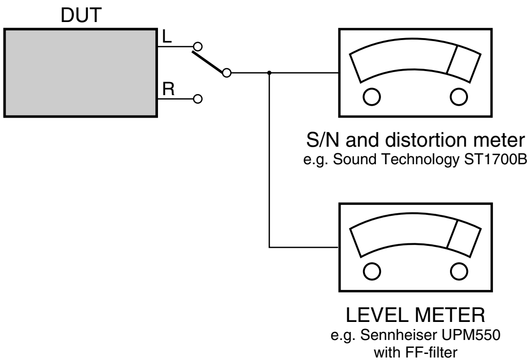
Tuner AM (MW,LW)


Bandpass
250Hz-15kHz
e.g. 7122 707 48001
DUT
LF Voltmeter
e.g. PM2534
RF Generator
e.g. PM5326
Ri=50Ω
Frame aerial
e.g. 7122 707 89001
S/N and distortion meter
e.g. Sound Technology ST1700B

To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday´s cage.
Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

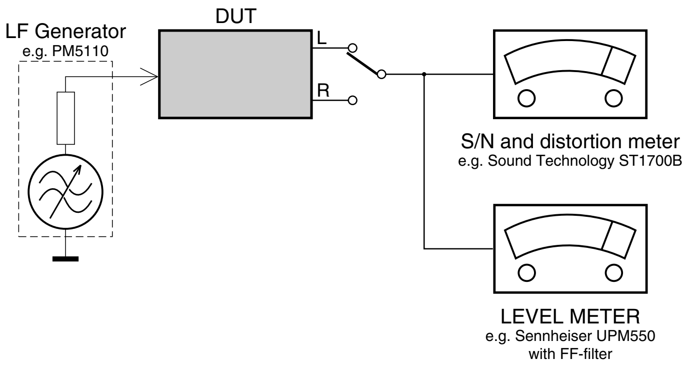
CD

Use Audio Signal Disc SBC429 4822 397 30184
(replaces test disc 3)


DUT
L
R
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071


LF Generator
e.g. PM5110
DUT
L
R
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6 - T20	4822 395 50145
Torx driver T10 extended	4822 395 50423

Cassette:

SBC419 Test cassette CrO2	4822 397 30069
SBC420 Test cassette Fe	4822 397 30071
MTT150 Dolby level 200nWb/M	4822 397 30271

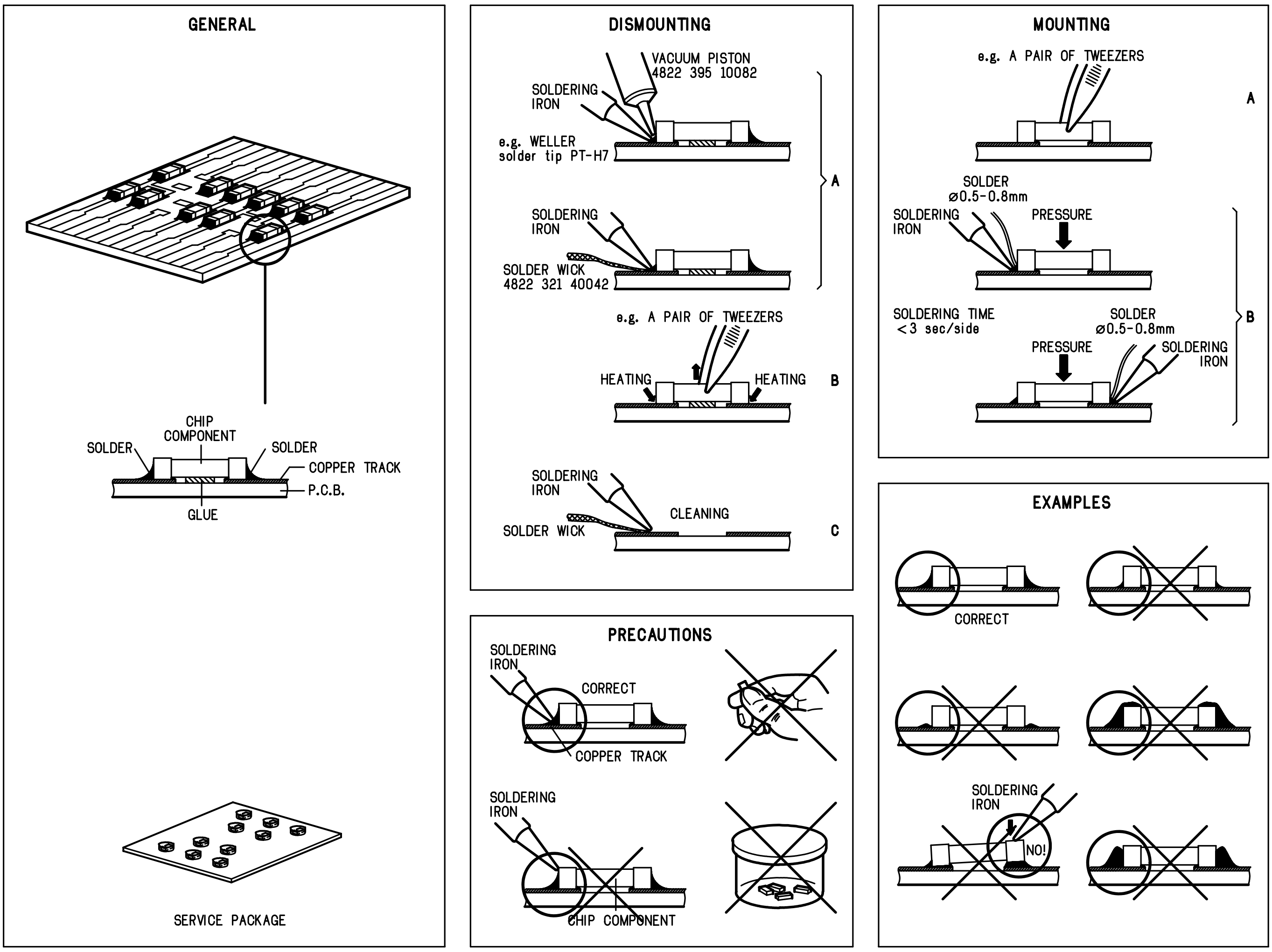
Compact Disc:

SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216

ESD Equipment:

Anti-static table mat - large 1200x650x1.25mm	4822 466 10953
Anti-static table mat - small 600x650x1.25mm	4822 466 10958
Anti-static wristband	4822 395 10223
Connector box (1MΩ)	4822 320 11307
Extension cable (to connect wristband to conn. box)	4822 320 11305
Connecting cable (to connect table mat to conn. box)	4822 320 11306
Earth cable (to connect product to mat or box)	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 320 10671
Wristband tester	4822 344 13999

HANDLING CHIP COMPONENTS


GENERAL
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE
DISMOUNTING
VACUUM PISTON 4822 395 10082
SOLDERING IRON
e.g. WELLER solder tip PT-H7
A
SOLDERING IRON
SOLDER WICK 4822 321 40042
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
CLEANING
SOLDER WICK
C
MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER ⌀0.5-0.8mm
SOLDERING IRON
PRESSURE
SOLDERING TIME <3 sec/side
SOLDER ⌀0.5-0.8mm
PRESSURE
SOLDERING IRON
B
PRECAUTIONS
SOLDERING IRON
CORRECT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT
EXAMPLES
CORRECT
SOLDERING IRON
NO!

GB **WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

F **ATTENTION**

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

ESD

D **WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

NL **WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

I **AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

NL

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utiliséés les piéces de rechange identiques à celles spécifiées.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

CLASS 1
LASER PRODUCT
3122 110 03420

GB **Warning !**

Invisible laser radiation when open.
Avoid direct exposure to beam.

S **Varning !**

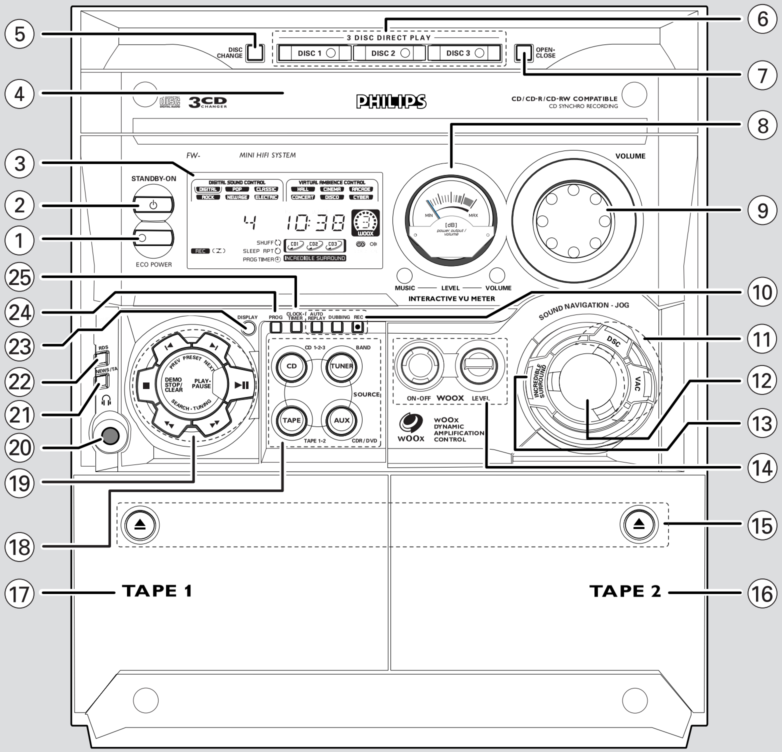
Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

SF **Varoitus !**

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

DK **Advarse !**

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.


1
2
3
4
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9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
DISC CHANGE
3 DISC DIRECT PLAY
DISC 1
DISC 2
DISC 3
OPEN-CLOSE
3CD CHANGER
PHILIPS
CD/CD-R/CD-RW COMPATIBLE
CD SYNCHRO RECORDING
FW-
MINI HIFI SYSTEM
VOLUME
STANDBY-ON
ECO POWER
DIGITAL SOUND CONTROL
VIRTUAL AMBIENCE CONTROL
INCREDIBLE SURROUND
MUSIC
LEVEL
VOLUME
INTERACTIVE VU METER
SOUND NAVIGATION - JOG
DISPLAY
PROG
CLOCK/TIMER
AUTO REPLAY
DUBBING
REC
CD 1·2·3
BAND
CD
TUNER
SOURCE
TAPE
AUX
TAPE 1-2
CDR/DVD
ON-OFF
wOOx
LEVEL
wOOx DYNAMIC AMPLIFICATION CONTROL
DSC
VAC
INCREDIBLE SURROUND
RDS
NEWS/TA
PREV
PRESET
NEXT
DEMO STOP/CLEAR
PLAY-PAUSE
SEARCH • TUNING
TAPE 1
TAPE 2

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General Information

This product complies with the radio interference requirements of the European Community.

Environmental Information

All unnecessary packaging has been omitted. We have tried to make the packaging easy to separate into three materials: cardboard (box), polystyrene foam (buffer) and polyethylene (bags, protective foam sheet).

Your system consists of materials which can be recycled and reused if disassembled by a specialised company. Please observe the local regulations regarding the disposal of packaging materials, exhausted batteries and old equipment.

Acknowledgement

Energy Star

As an ENERGY STAR® Partner, Philips has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

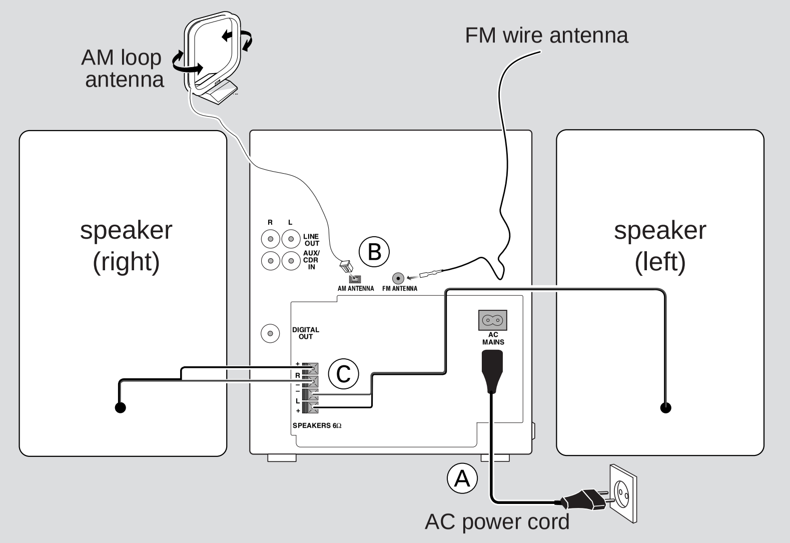
Supplied accessories

- Remote control
- Batteries (two AA size) for remote control
- AM loop antenna
- FM wire antenna
- AC power cord

Safety Information

- Before operating the system, check that the operating voltage indicated on the typeplate (or the voltage indication beside the voltage selector) of your system is identical with the voltage of your local power supply. If not, please consult your dealer.
- Place the system on a flat, hard and stable surface.
- Place the system in a location with adequate ventilation to prevent internal heat build-up in your system. Allow at least 10 cm (4 inches) clearance from the rear and the top of the unit and 5 cm (2 inches) from each side.
- Do not expose the system, batteries or discs to excessive moisture, rain, sand or heat sources caused by heating equipment or direct sunlight.
- If the system is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lens of the disc unit inside the system. Should this occur, the CD player would not operate normally. Leave the power on for about one hour with no disc in the system until normal playback is possible.
- The mechanical parts of the set contain self-lubricating bearings and must not be oiled or lubricated.
- **When the system is switched to Standby mode, it is still consuming some power. To disconnect the system from the power supply completely, remove the AC power plug from the wall socket.**

Preparations



Rear Connections

The type plate is located at the rear of the system.
For users in the U.K.: please follow the instructions on page 2.

Ⓐ Power

Before connecting the AC power cord to the wall outlet, ensure that all other connections have been made.

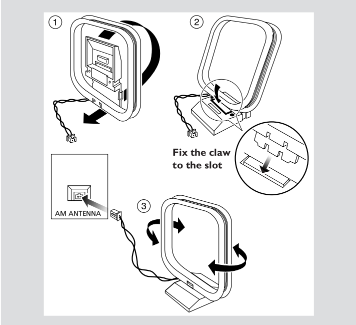
WARNING!
– For optimal performance, use only the original power cable.
– Never make or change connections with the power switched on.

To avoid overheating of the system, a safety circuit has been built in. Therefore, your system may switch to Standby mode automatically under extreme conditions. If this happens, let the system cool down before reusing it *(not available for all versions)***.**

Ⓑ Antennas Connection

Connect the supplied AM loop antenna and FM antenna to the respective terminals. Adjust the position of the antenna for optimal reception.

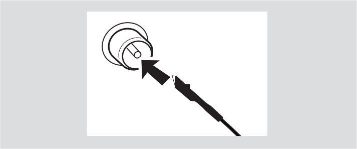
AM Antenna



- Position the antenna as far as possible from a TV, VCR or other radiation source.

Preparations

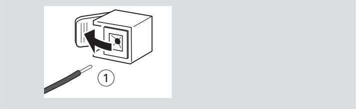
FM Antenna



- For better FM stereo reception, connect an outdoor FM antenna to the FM ANTENNA terminal.

Ⓒ **Speakers Connection**

Front Speakers
Connect the speaker wires to the SPEAKERS (FRONT) terminals, right speaker to "**R**" and left speaker to "**L**", coloured (marked) wire to "+" and black (unmarked) wire to "−".



- Clip the stripped portion of the speaker wire as shown.

Notes:
– For optimal sound performance, use the supplied speakers.
– Do not connect more than one speaker to any one pair of +/− speaker terminals.
– Do not connect speakers with an impedance lower than the speakers supplied. Please refer to the SPECIFICATIONS section of this manual.

Optional Connections

The optional equipment and connecting cords are not supplied. Refer to the operating instructions of the connected equipment for details.

Line Out Connection
Connect this output to any analogue audio equipment for playback or recording (CD recorder, tape recorder or amplifier for example). Use a cinch cable to connect the **LINE OUT** terminals to the analogue audio in terminals of the equipment.

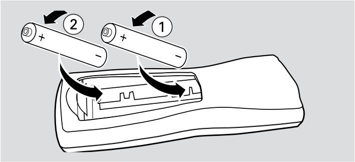
Connecting other equipment to your system
Connect the audio left and right OUT terminals of a TV, VCR, Laser Disc player, DVD player or CD Recorder to the **AUX/CDR IN** terminals.

Notes:
– Do not connect equipment to both the LINE OUT and AUX/CDR IN terminals at the same time. Otherwise, noise will be generated and malfunction might occur.
– If you are connecting equipment with a mono output (a single audio out terminal), connect it to the AUX/CDR IN left terminal. Alternatively, you can use a "single to double" cinch cable (still be mono sound).

Digital Out Connection
Connect this digital output when recording on any audio equipment with digital input (CD Recorder, Digital Audio Tape [DAT] deck, Digital to Analogue Converter and Digital Signal Processor, for example). Use a cinch cable to connect the **DIGITAL OUT** terminal to the digital input terminal of the equipment.

Inserting batteries into the Remote Control

Insert two batteries (Type R06 or AA) into the remote control with the correct polarity as indicated by the + and − symbols inside the battery compartment.



CAUTION!
– Remove batteries if they are exhausted or not to be used for a long time.
– Do not use old and new or different types of batteries in combination.
– Batteries contain chemical substances, so they should be disposed off properly.

Controls *(main system's illustration on page 3)*

Controls on the system and remote control

① **ECO POWER**
– to switch the system on or to Eco Power Standby mode.
② **STANDBY ON ⏻**
– to switch the system on or to Standby mode.
③ **DISPLAY SCREEN**
– to view the current status of the system.
④ **DISC TRAY**
⑤ **DISC CHANGE**
– to change disc(s).
⑥ **DISC 1 / DISC 2 / DISC 3 (CD DIRECT)**
– to select a disc tray for playback.
⑦ **OPEN•CLOSE**
– to open or close the disc tray.
⑧ **INTERACTIVE VU METER**
– to show the VU (volume unit) meter in music or volume mode depending on the display mode selected.
⑨ **VOLUME**
– to increase or decrease the volume.
⑩ **Tape Deck Operation**
AUTO REPLAY (AUTO RE.)
– to select continuous playback in either AUTO PLAY or ONCE mode only.
DUBBING
– to dub a tape.
REC
– to start recording on tape deck 2.
⑪ **SOUND NAVIGATION**
– to select the desired sound feature : DSC or VAC.
⑫ **JOG CONTROL**
– to select the desired sound effect for the selected sound feature.
DSC .... DIGITAL, ROCK, POP, NEWAGE, CLASSIC or ELECTRIC.
VAC .... HALL, CONCERT, CINEMA, DISCO, ARCADE or CYBER.
⑬ **INCREDIBLE SURROUND (IS)**
– to activate or deactivate the surround sound effect.
⑭ **wOOx ON•OFF**
– to select enhanced or normal wOOx sound effect.
wOOx LEVEL
– to select desired wOOx level : WOOX 1, WOOX 2 or WOOX 3.
⑮ **▲**
– to open the tape deck door.
⑯ **TAPE DECK 2**
⑰ **TAPE DECK 1**
⑱ **SOURCE** – to select the following:
CD / (CD 1•2•3)
– to select disc tray 1, 2 or 3.
TUNER / (BAND)
– to select waveband : FM, MW or LW.
TAPE / (TAPE 1• 2)
– to select tape deck 1 or 2.
AUX / (CDR/DVD)
– to select a connected external source : CDR/DVD or AUX (auxiliary) mode.
⑲ **Mode Selection**
PLAY PAUSE ▶❚❚
for CD .... to start or interrupt playback.
for TAPE .... to start playback.
for PLUG & PLAY…*(on the system only)* to initiate and start plug & play mode.
SEARCH• TUNING ◀◀▶▶
for CD .... to search backward/forward.
for TUNER .... to tune to a lower or higher radio frequency.
for TAPE .... to rewind or fast forward.
for CLOCK .... *(on the system only)* to set the hour.
DEMO STOP/CLEAR ■
for CD .... to stop playback or to clear a programme.
for TUNER .... to stop programming.
.... to delete the preset radio station.
for TAPE .... to stop playback or recording.
.... to reset tape counter number.
for DEMO .... *(on the system only)* to activate/deactivate the demonstration.
for CLOCK .... *(on the system only)* to exit clock setting or cancel timer.
for PLUG & PLAY…*(on the system only)* to exit plug & play mode.
PREV / PRESET / NEXT ⏮ ⏭
for CD .... to skip to the beginning of the current, previous, or next track.
for TUNER .... to select a preset radio station.
for CLOCK .... *(on the system only)* to set the minute.

Controls

⑳ 🎧
– to connect headphones.

㉑ **NEWS/TA**
– to hear News or Traffic Announcement automatically.

㉒ **RDS**
– to select RDS information.

㉓ **DISPLAY**
– to select different screen display mode : NORMAL, MODE 1, MODE 2, or MODE 3.

㉔ **PROG (PROGRAM)**
for CD .... to programme disc tracks.
for TUNER .... to programme preset radio stations.
for CLOCK .... *(on the system only)* to select 12- or 24-hour clock mode.

㉕ **CLOCK•TIMER**
– to view the clock, set the clock or set the timer.

㉖ **MUTE**
– to interrupt or resume sound reproduction.

㉗ **CLOCK**
– to view the clock display.

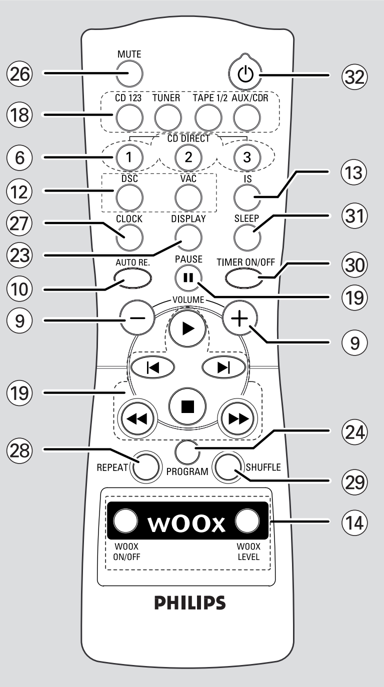
㉘ **REPEAT**
– to playback track(s)/disc(s)/programme repeatedly.

㉙ **SHUFFLE**
– to playback all available discs and their tracks/ programme in random order.

㉚ **TIMER ON/OFF**
– to activate or deactivate the timer.

㉛ **SLEEP**
– to activate, deactivate or set the sleep timer.

㉜ ⏻
– to switch the system to Standby mode.
– to switch the system to Eco Power Standby mode.



㉖
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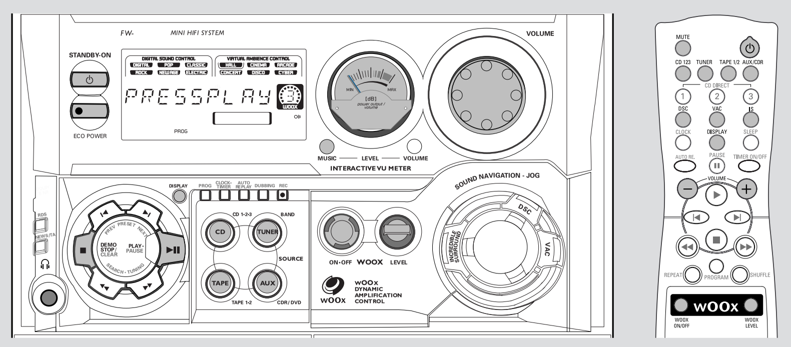
⑭
MUTE
CD 123
TUNER
TAPE 1/2
AUX/CDR
CD DIRECT
1
2
3
DSC
VAC
IS
CLOCK
DISPLAY
SLEEP
AUTO RE.
PAUSE
TIMER ON/OFF
VOLUME
REPEAT
PROGRAM
SHUFFLE
wOOx
WOOX ON/OFF
WOOX LEVEL
PHILIPS

Notes for remote control:
– First, select the source you wish to control by pressing one of the source select keys on the remote control (CD 123 or TUNER, for example).
– Then select the desired function (▶, ⏮, ⏭, for example).

Basic Functions



FW-
MINI HIFI SYSTEM
STANDBY-ON
ECO POWER
DIGITAL SOUND CONTROL
VIRTUAL AMBIENCE CONTROL
PRESSPLAY
PROG
VOLUME
MUSIC
LEVEL
VOLUME
INTERACTIVE VU METER
SOUND NAVIGATION - JOG
DISPLAY
PROG
CLOCK TIMER
AUTO REPLAY
DUBBING
REC
CD 1-2-3
BAND
CD
TUNER
SOURCE
TAPE
AUX
TAPE 1-2
CDR/DVD
DEMO STOP CLEAR
PLAY PAUSE
ON•OFF
WOOX
LEVEL
wOOx DYNAMIC AMPLIFICATION CONTROL
DSC
VAC
RDS
NEWS/TA
MUTE
CD 123
TUNER
TAPE 1/2
AUX/CDR
CD DIRECT
SLEEP
TIMER ON/OFF
REPEAT
PROGRAM
SHUFFLE
WOOX ON/OFF
WOOX LEVEL

IMPORTANT!
Before you operate the system, complete the preparation procedures.

Plug and Play

Plug and Play allows you to store all available RDS stations and radio stations automatically.

If Plug and Play has not been installed

1. When you turn on the system, "AUTO INSTALL - PRESS PLAY" will be displayed.
2. Press **PLAY ▶** on the system to start installation.
   ➜ "INSTALL" will be displayed and followed by "TUNER" and then "AUTO".
   ➜ **PROG** will start flashing.
   ➜ The system will search for all RDS stations and then continue with radio stations on FM, MW and LW band respectively. Weak RDS stations may be stored in later presets.
   ➜ All available RDS and radio stations with sufficient signal strength will be stored automatically.
   ➜ The system will stop searching when all the available radio stations are stored or when the memory for 40 preset radio stations is used.
   ➜ The last preset radio station or the first available RDS station will play when Plug and Play is completed.
3. The system will proceed to set the RDS time automatically with the stored RDS preset station.

● If no RDS station is found in the first preset station;
➜ The programme will exit automatically.

● If RDS radio station is found;
➜ "INSTALL" will be displayed and followed by "TIME".

● When searching RDS time;
➜ "SEARCH RDS TIME" will be displayed.
➜ When RDS time is read, "RDS TIME" will be displayed. The current time will be displayed for 2 seconds and stored automatically.
➜ If RDS station does not transmit RDS time within 90 seconds, the programme will exit automatically and the display will show "NO RDS TIME".

To reinstall Plug and Play

1. In Standby or Demonstration mode, press and hold **PLAY ▶** on the system until "AUTO INSTALL - PRESS PLAY" is displayed.
2. Press **PLAY ▶** again to start installation.
   ➜ All previously stored radio stations will be replaced.

To exit without storing the Plug and Play

● Press ■ on the system.

Notes:
– When the power is turned on, the disc tray may open and close to initialise the system.
– If you do not complete Plug and Play installation, Plug and Play will be reinitiated the next time you turn on the power.
– If no stereo frequency is detected during Plug and Play, "CHECK ANTENNA" will be displayed.
– During Plug and Play, if no button is pressed within 15 seconds, the system will exit Plug and Play mode automatically.

Basic Functions

Demonstration mode

The system has a demonstration mode that shows the various features offered by the system.

To activate the demonstration

- In Standby mode, press and hold **DEMO STOP ■** on the system until "DEMO ON" is displayed.
  ➜ The demonstration will begin.

To deactivate the demonstration

- Press and hold **DEMO STOP ■** on the system until "DEMO OFF" is displayed.
  ➜ The system will switch to Standby mode.

Note:
– Even if you remove the AC power cord and reconnect it to the wall socket, the demonstration will remain off until you activate it again.

Switching the system on

In Standby/Demonstration mode

- Press **STANDBY ON**.
  ➜ The system will switch to the last selected source.
- Press **CD**, **TUNER**, **TAPE**, **AUX** (or **CD 123**, **TUNER**, **TAPE 1/2** or **AUX/CDR** on the remote control).
  ➜ The system will switch to the selected source.
- Press any one of the DISC DIRECT PLAY buttons or **OPEN•CLOSE**.
  ➜ The system will switch to CD mode.

In Eco Power Standby mode

- Press **ECO POWER**.
  ➜ The system will switch to last selected source.
- Press **CD 123**, **TUNER**, **TAPE 1/2** or **AUX/CDR** on the remote control.
  ➜ The system will switch to the selected source.

Switching the system to Standby mode

In Demonstration mode

- Press and hold **DEMO STOP ■** on the system.

In any other source mode (except Eco Power Standby mode)

- Press **STANDBY ON** (or ⏻ on the remote control).
  ➜ The clock will appear on the display when the system is in Standby mode.

Switching the system to Eco Power Standby mode (< 1 Watt)

- Press **ECO POWER** (or press and hold ⏻ on the remote control).
  ➜ "ECO POWER" will be displayed, then the display screen will go blank.
  ➜ The low power ECO POWER LED will be lighted.

Note:
– If you have not deactivated the demonstration, it will resume five seconds after the system switches to Eco Power Standby or Standby mode.

Power Saving Automatic Standby

As a power-saving feature, the system will automatically switch to Standby mode if you do not press any buttons within 30 minutes after a disc or tape has stopped playing.

Basic Functions

Display mode

There are four different display modes for selection.

- Press **DISPLAY** repeatedly to select NORMAL, MODE 1, MODE 2, or MODE 3.

NORMAL	All available LEDs will light up and the display screen will have full brightness. The VU meter will be in music mode.
MODE 1	All available LEDs will light up and the display screen will have full brightness. The VU meter will be in volume mode.
MODE 2	All available LEDs will light up and the display screen will be at half brightness. The VU meter will be in music mode.
MODE 3	The display screen will be at half brightness. The VU meter and all LEDs will be off.

Volume Control

Adjust **VOLUME** to increase (turn knob clockwise or press VOLUME +) or decrease (turn knob anti-clockwise or press VOLUME –) the sound level.

To listen through the headphones

- Connect the headphones plug to the 🎧 socket at the front of the system.
  ➜ The speakers will be muted.

To switch off the volume temporarily

- Press **MUTE** on the remote control.
  ➜ Playback will continue without sound and "MUTE" will be displayed.
- To restore the volume, press **MUTE** again or increase the VOLUME level.

Sound Navigation

For optimal sound listening, select only one of the following navigation sound controls at a time : wOOx, DSC or VAC.

wOOx

There are three wOOx settings to enhance the bass response.

1 Press **wOOx ON•OFF** to switch ON (enhanced) or OFF (normal) the wOOx sound effect.
- When wOOx is switched on;
  ➜ **woox** and the last selected wOOx level will appear on the display.
- When wOOx is switched off;
  ➜ The display will show "WOOX NORM" and **woox** will disappear from the display.

2 When wOOx is switched on, adjust **wOOx LEVEL** (or press **wOOx LEVEL** on the remote conrol) to select the desired wOOx level: WOOX 1, WOOX 2 or WOOX 3.

Note:
– Some discs or tapes might be recorded in high modulation, which causes a distortion at high volume. If this occurs, deactivate wOOx or reduce the volume.

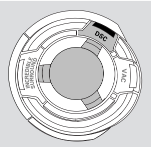
Automatic DSC-wOOx / VAC-wOOx selection

The best wOOx setting is generated automatically for each DSC or VAC selection. You can manually select the wOOx setting that best suits your listening environment.

Basic Functions

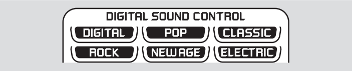
DSC (Digital Sound Control)

The DSC feature enables you to adjust the system to suit your type of music.


DSC
VAC
INCREDIBLE SURROUND

1 Press **DSC**.
➜ DSC button lights up

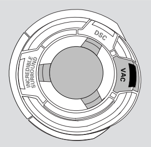
2 Adjust the **JOG CONTROL** (or press **DSC** on the remote control repeatedly) to select the desired Digital Sound Control effect : DIGITAL, ROCK, POP, NEWAGE, CLASSIC or ELECTRIC.
➜ The selected DSC will be highlighted.


DIGITAL SOUND CONTROL
DIGITAL
POP
CLASSIC
ROCK
NEWAGE
ELECTRIC

Note:
– *For a neutral sound effect, select CLASSIC.*

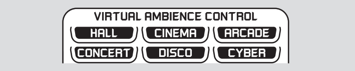
VAC (Virtual Ambience Control)

The VAC feature enables you to adjust the system to select a type of environment.


DSC
VAC
INCREDIBLE SURROUND

1 Press **VAC**.
➜ VAC button lights up.

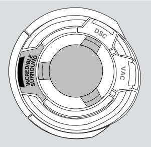
2 Adjust the **JOG CONTROL** (or press **VAC** on the remote control repeatedly) to select the desired Virtual Ambience Control effect : HALL, CONCERT, CINEMA, DISCO, ARCADE or CYBER.
➜ The selected VAC will be highlighted.


VIRTUAL AMBIENCE CONTROL
HALL
CINEMA
ARCADE
CONCERT
DISCO
CYBER

Note:
– *When you select VAC, Incredible Surround will switch on automatically.*

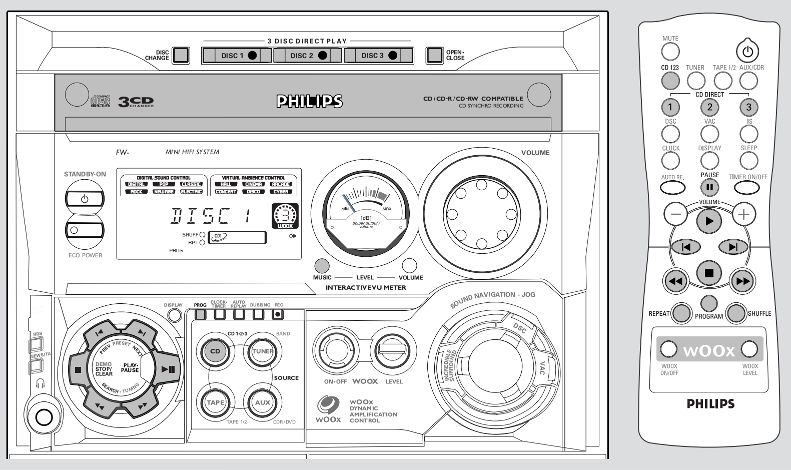
Incredible Surround

The Incredible Surround magnifies the virtual distance between the front speakers for an incredibly wide, enveloping, stereo effect.


DSC
VAC
INCREDIBLE SURROUND

- Press **INCREDIBLE SURROUND** (or **IS** on the remote control) repeatedly to activate/ deactivate the surround sound effect.
➜ If activated, INCREDIBLE SURROUND will appear on the display and the INCREDIBLE SURROUND button lights up.
➜ If deactivated, "IS OFF" will be displayed.

CD Operation


DISC CHANGE
3 DISC DIRECT PLAY
DISC 1
DISC 2
DISC 3
OPEN• CLOSE
3CD
PHILIPS
CD / CD-R / CD-RW COMPATIBLE
CD SYNCHRO RECORDING
FW-
MINI HIFI SYSTEM
VOLUME
STANDBY-ON
ECO POWER
DIGITAL SOUND CONTROL
VIRTUAL AMBIENCE CONTROL
DISC 1
SHUFF
RPT
PROG
MUSIC
LEVEL
VOLUME
INTERACTIVE VU METER
SOUND NAVIGATION - JOG
DISPLAY
PROG
CLOCK• TIMER
AUTO REPLAY
DUBBING
REC
CD 1-2-3
BAND
CD
TUNER
SOURCE
TAPE
AUX
TAPE 1•2
CDR / DVD
DEMO STOP• CLEAR
PLAY• PAUSE
PRESET
NEXT
PREV
SEARCH • TUNING
ON-OFF
wOOx
LEVEL
wOOx DYNAMIC AMPLIFICATION CONTROL
DSC
VAC
INCREDIBLE SURROUND
MUTE
CD 123
TUNER
TAPE 1/2
AUX/CDR
CD DIRECT
1
2
3
DSC
VAC
IS
CLOCK
DISPLAY
SLEEP
AUTO RE..
PAUSE
TIMER ON/OFF
VOLUME
REPEAT
PROGRAM
SHUFFLE
wOOx
WOOX ON/OFF
WOOX LEVEL
PHILIPS

IMPORTANT!
– This system is designed for regular discs. Therefore, do not use any accessories such as disc stabiliser rings or disc treatment sheets, etc., as offered on the market, because they may jam the changer mechanism.
– Do not load more than one disc into each tray.

Discs for Playback

This system can playback all digital audio CD, finalised digital audio CD-Recordable (CDR) discs and finalised digital audio CD-Rewritable (CDRW)discs.

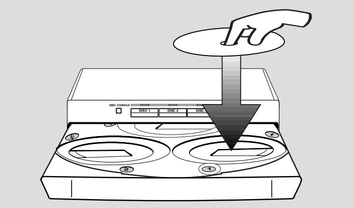
COMPACT disc DIGITAL AUDIO
COMPACT disc DIGITAL AUDIO Recordable
COMPACT disc DIGITAL AUDIO ReWritable

Loading Discs

1 Press **CD** to select CD mode.

2 Press **OPEN•CLOSE** to open the disc tray.

3 Load up to two discs on the individual disc trays. To load the third disc, press **DISC CHANGE**.
➜ The disc tray will rotate until the empty tray is ready for loading.



4 Press **OPEN•CLOSE** to close the disc tray.
➜ "READING" will be displayed. The selected disc tray, total number of tracks and the playing time will appear on the display.
➜ A lighted button indicates that a disc is loaded in the disc tray.

Notes:
– *Load the discs with the label side facing up.*
– *To ensure good system performance, wait until the disc tray completely reads the disc(s) before proceeding.*

Disc Playback

◎	a disc is loaded in the disc tray
CD1	the current selected disc tray is empty
CD1	the current selected disc tray is loaded or playing

To playback all discs on the disc tray

- ● Press **PLAY ▶**.
  ➜ All the available discs will playback once, then stop.
  ➜ During playback, the selected disc tray, track number and elapsed playing time of the current track will appear on the display.

To playback one disc only

- ● Press the DISC DIRECT PLAY button : **DISC 1**, **DISC 2** or **DISC 3**.
  ➜ The selected disc will playback once, then stop.

To interrupt playback

- ● Press **PAUSE II**.
- ● To resume playback, press **PLAY ▶** again.

To stop playback

- ● Press ■ .

To search for a particular passage during playback

- ● Press and hold ◀◀ or ▶▶ and release it when the desired passage is located.
  ➜ During searching, the volume will be reduced.

To select a desired track

- ● Press |◀ or ▶| repeatedly until the desired track appears on the display.
- ● If playback is stopped, press **PLAY ▶** to start playback.

Note:

– In Shuffle mode, pressing |◀ will cause the player to skip only to the beginning of the current track.

To skip to the beginning of the current track during playback

- ● Press |◀ **once**.

Replace discs during playback

1. Press **DISC CHANGE**.
2. To change the inner disc, press **DISC CHANGE** again.
   ➜ "DISC CHANGE" will be displayed and the disc will stop playing.
   ➜ The disc tray will close to retrieve the inner disc, then reopen with the inner disc accessible.

Programming the disc tracks

Programming tracks is possible when playback is stopped. Up to 40 tracks can be stored in the memory in any order.

1. Load the desired discs on the disc tray (refer to "Loading Discs").
2. Press **PROG** to start programming.
   ➜ **PROG** will start flashing.
3. Press **CD** (CD 1•2•3) or **DISC 1/2/3** button to select a disc.
4. Press |◀ or ▶| repeatedly to select the desired track.
5. Press **PROG** to store the track.

- ● Repeat ***steps 3–5*** to store other discs and tracks.

6. Press **PLAY ▶** to start programme playback.
   ➜ "PLAY PROGRAM" will be displayed.

- ● To end programming without starting playback, press ■ **once** .
  ➜ The total number of tracks programmed and the total playing time will appear on the display.

Notes:

– If the total playing time is more than "99:59" or if one of the programmed tracks has a number greater than 30, then "- - : - -" will appear on the display instead of the total playing time.

– If you attempt to programme more than 40 tracks, "PROGRAM FULL" will be displayed.

*– If you press any of the DISC DIRECT PLAY buttons, the system will playback the selected disc or track, and the stored programme will be ignored temporarily. The **PROG** symbol also will disappear temporarily from the display. It will reappear when playback of the selected disc ends.*

– During programming, if no button is pressed within 20 seconds, the system will exit the Programme mode automatically.

To review the programme

- ● Stop playback and press |◀ or ▶| repeatedly.
- ● To exit review mode, press ■.

To erase the entire programme

- ● Press ■ **once** when playback is stopped or **twice** during playback.
  ➜ "PROGRAM CLEARED" will be displayed.
  ➜ **PROG** will disappear from the display.

Note:

– The programme will be erased when the system is disconnected from the power supply or when the disc tray is opened.

Repeat

The current track, a disc, all available discs or all programmed tracks can be played repeatedly.

1. Press **REPEAT** on the remote control repeatedly to select various repeat modes.

- ● **In normal playback**
  ➜ "TRACK" – to repeat the current track.
  "DISC" – to repeat the entire disc.
  "ALL DISC" – to repeat all available discs.
  ➜ **RPT** ⟳ appears on the display.
- ● **In programme playback**
  ➜ "TRACK" – to repeat the current programmed track.
  "PROGRAM" – to repeat all programmed tracks.
  ➜ **RPT** ⟳ and **PROG** will appear on the display.
- ● The selected track/disc(s)/programme will now be played repeatedly until you press ■.

2. To resume normal playback, press **REPEAT** until the "OFF" mode is displayed.
   ➜ **RPT** ⟳ will disappear from the display.

Note:

– Selecting SHUFFLE during repeat playback will cancel all repeat modes.

Shuffle

All the available discs and their tracks or all the programmed tracks can be played in random order.

1. Press **SHUFFLE** on the remote control.
   ➜ "SHUFFLE" and **SHUFF** ⟲ will appear on the display.

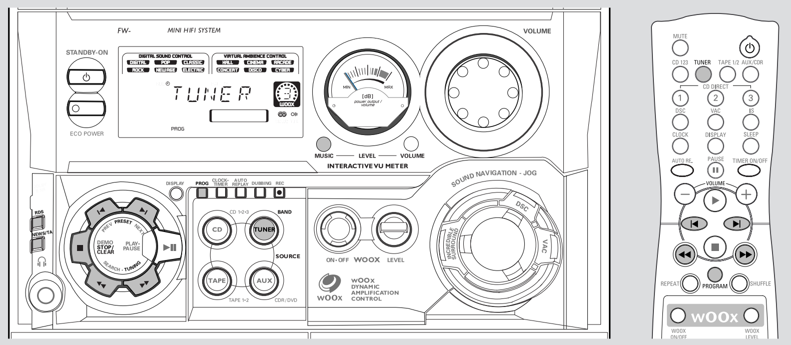
- ● The discs and the tracks will be played in random order until you press ■.

2. To resume normal playback, press **SHUFFLE** again.
   ➜ **SHUFF** ⟲ will disappear from the display.

When select REPEAT mode during shuffling

- ● **In normal shuffled playback**
  ➜ "TRACK" and "ALL DISC" repeat modes are available for selection.
  ➜ **RPT** ⟳ and **SHUFF** ⟲ will appear on the display.
- ● **In programme shuffled playback**
  ➜ "TRACK" or "PROGRAM" repeat modes are available for selection.
  ➜ **RPT** ⟳, **SHUFF** ⟲ and **PROG** will appear on the display.

For Recording, please refer to "Tape Operation/Recording".


FW-
MINI HIFI SYSTEM
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SOUND NAVIGATION - JOG
DISPLAY
PROG
CLOCK-TIMER
AUTO REPLAY
DUBBING
REC
PRESET
DEMO STOP/CLEAR
PLAY-PAUSE
SEARCH · TUNING
CD
TUNER
BAND
TAPE
AUX
SOURCE
TAPE 1·2
CDR/DVD
ON·OFF
wOOx
LEVEL
wOOx DYNAMIC AMPLIFICATION CONTROL
DSC
VAC
MUTE
CD 1/2/3
TUNER
TAPE 1/2
AUX/CDR
CD DIRECT
1
2
3
DSC
VAC
IS
CLOCK
DISPLAY
SLEEP
AUTO/RL
PAUSE
TIMER ON/OFF
VOLUME
REPEAT
PROGRAM
SHUFFLE
wOOx
WOOX ON/OFF
WOOX LEVEL

Storing Preset Radio Stations

You can store up to 40 preset radio stations in the memory.

Automatic Preset Programming

- Plug and Play setting (refer to "Basic Functions - Plug and Play").

OR

1. Press **TUNER** (BAND) to select TUNER mode.
   → "TUNER" will be displayed. A few seconds later, the current radio frequency will appear on the display.
   → If a FM station is received in stereo, ꝏ will appear on the display.

To begin automatic preset from a desired preset number

- Press ⏮ or ⏭ to select the desired preset number.
  → For those radio stations that had been stored in one of the preset will not be restored again to another preset number.

2. Press and hold **PROG** until "AUTO" appears on the display.
   → **PROG** will start flashing.
   → The system will search for all RDS stations and then continue with radio stations on FM, MW and LW band respectively.
   → All available radio stations with sufficient signal strength will be stored automatically.
   → The system will stop searching when all the available radio stations are stored or when the memory for 40 preset radio stations is used.
   → The last preset radio station or the first available RDS station will then be played when completed.

To stop storing the automatic preset

- Press **PROG** or ■ on the system.

Note:
– If no preset number is selected, automatic preset will begin from preset (1) and all your former presets will be overridden.

Manual Preset Programming

1. Press **TUNER** (BAND) repeatedly to select the desired waveband : FM, MW or LW.
2. Press **PROG**.
   → **PROG** will start flashing.
   → The next available preset number will be displayed for selection.
3. Press and hold ◀◀ or ▶▶ until the frequency indication starts to change, then release.
   → The display will show "SEARCH" until a radio station with sufficient signal strength is found.

To store the radio station to another preset number

- Press ⏮ or ⏭ to select the desired preset number.

4. Press **PROG** again to store the radio station.
   → **PROG** will disappear from the display.

- Repeat ***steps 2–4*** to store other preset radio stations.

Tuning to a weak radio station

- Press ◀◀ or ▶▶ briefly and repeatedly until the optimal reception is found.

To stop storing the manual preset

- Press ■ on the system.

Notes:
– If you attempt to store more than 40 preset radio stations, "PROGRAM FULL" will be displayed.
– During programming, if no button is pressed within 20 seconds, the system will exit the Programme mode automatically.

Tuning to Preset Radio Stations

- Once you've preset the radio stations, press ⏮ or ⏭ to select the desired preset number.
  → The preset number, radio frequency, and waveband will appear on the display.

Erasing a Preset Radio Station

1. Press ⏮ or ⏭ to select the preset radio station to be erased.
2. Press and hold ■ on the system until "PRESET DELETED" appears on the display.
   → The radio frequency remain on the display.
   → The preset numbers of all other preset radio stations in the band with higher numbers are also decreased by one.

- Repeat ***steps 1–2*** to erase other preset radio stations.

For Recording, please refer to "Tape Operation/Recording".

RDS

RDS (Radio Data System) is a broadcasting service that allows FM stations to send additional information along with the regular FM radio signal. This additional information can contain:

Station name: The radio station name is displayed.

Programme type: The following programme types exist and can be received by your tuner: News, Affairs, Info, Sport, Educate, Drama, Culture, Science, Varied, Pop M, Rock M, M.O.R. (middle of the road music), Light M, Classics, Other M, No type.

Radio text (RT): text messages appear on the display.

Receiving RDS Radio Station

- Tuned to a radio station from FM band.
  → If the radio station transmitting RDS signal, the RDS logo (ꝏ) and the radio station name will appear on the display.

To check the RDS information

- Press **RDS** repeatedly to scroll through the following information (if available) : STATION NAME → PROGRAMME TYPE → RADIO TEXT → TUNED FREQUENCY → STATION NAME ....

Notes:
– If the tuned radio station does not transmit RDS signal or is a non RDS station, "NO RDS" will be displayed.
– If the RDS text message is not available at the RDS station, "NO RDS TEXT" will be displayed.

RDS Time

Some RDS station may be transmitting a real clock time at an interval of every minute.

Setting the RDS time

1. Press **CLOCK•TIMER twice**.
   → "00:00" or current time starts flashing.
2. Press **RDS**.
   → "SEARCH RDS TIME" will be displayed.
   → When RDS time is read, "RDS TIME" and RDS time logo (RDS⊕) will be displayed. The current time will be displayed for 2 seconds and stored automatically.
   → If the RDS station does not transmit RDS time within 90 seconds, "NO RDS TIME" will be displayed.

Radio Reception

Note:
– Some RDS station may be transmitting a real time clock at a minute interval. The accuracy of the transmitted time depends on the transmitting RDS station.

NEWS/TA (traffic announcement)

(only available in RDS radio station)
Once the News PTY (Programme Type) or TA (Traffic Announcement) data is detected in a RDS station, it will switch to TUNER mode automatically.

IMPORTANT!
You can activate NEWS/TA function in Standby, Demonstration or any source mode except Tuner and Eco Power Standby mode.

To start NEWS/TA function

1 Press **NEWS/TA** to select NEWS or TA function.
➜ If NEWS is selected, "NEWS" and **NEWS** will appear on the display.
➜ If TA is selected, "TA" and **TA** will appear on the display.
➜ It will scan the radio stations stored in the first 5 preset and wait for the News Programme Type/Traffic Announcement data to be available in any of these RDS radio stations.

- If no RDS station is detected in the first 5 presets, the system will exit NEWS/TA function.
➜ "NO RDS NEWS" or "NO RDS TA" will be displayed and **NEWS** or **TA** will disappear from the display.

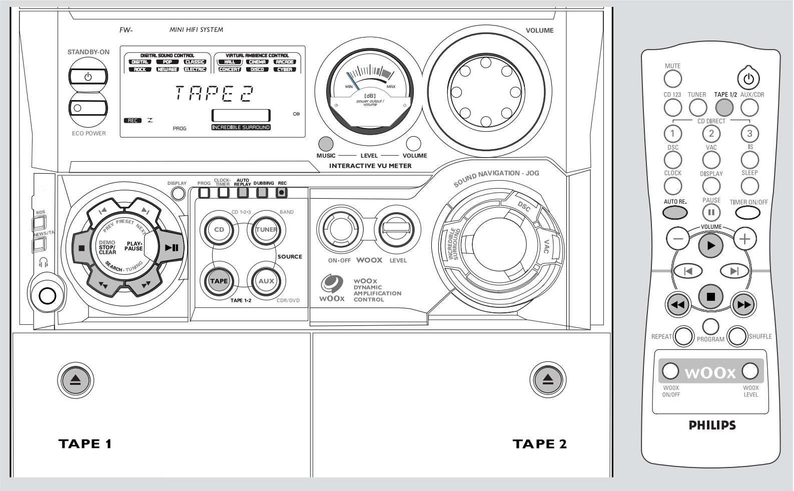
2 When NEWS or TA transmission is detected, the system will switch to Tuner mode automatically.
➜ **NEWS** or **TA** will start flashing.

Notes:
– You have to exit Tuner mode before selecting NEWS/TA function.
– While searching NEWS/TA in progress, the current source activity will remain uninterrupted.
– Before you activate the NEWS/TA feature, ensure that the first 5 presets have RDS stations.
– The NEWS/TA works only once for each activation.
– The NEWS/TA will not start if a recording is in progress.

To cancel NEWS/TA function

- Press **NEWS/TA** again or press **TUNER** to select tuner mode.
- During news bulletin or traffic announcement, press any other available source keys to execute the relevant source mode.

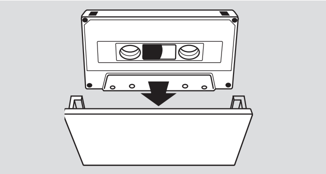
Tape Operation/Recording


FW-
MINI HIFI SYSTEM
VOLUME
STANDBY-ON
ECO POWER
DIGITAL SOUND CONTROL
VIRTUAL AMBIENCE CONTROL
TAPE 2
REC
PROG
INCREDIBLE SURROUND
MUSIC
LEVEL
VOLUME
INTERACTIVE VU METER
SOUND NAVIGATION - JOG
DISPLAY
PROG
CLOCK-TIMER
AUTO REPLAY
DUBBING
REC
DEMO STOP• CLEAR
PLAY• PAUSE
CD 1•2•3
BAND
CD
TUNER
SOURCE
TAPE
AUX
TAPE 1•2
CDR/DVD
ON•OFF
wOOx
LEVEL
wOOx DYNAMIC AMPLIFICATION CONTROL
DSC
VAC
TAPE 1
TAPE 2
MUTE
CD 123
TUNER
TAPE 1/2
AUX/CDR
CD DIRECT
1
2
3
DSC
VAC
IS
CLOCK
DISPLAY
SLEEP
AUTO RE.
PAUSE
TIMER ON/OFF
VOLUME
REPEAT
PROGRAM
SHUFFLE
wOOx
WOOX ON/OFF
WOOX LEVEL
PHILIPS

IMPORTANT!
– Before playing a tape, check and tighten slack tape with a pencil. Slack tape may get jammed or may burst in the mechanism.
– C-120 tape is extremely thin and is easily deformed or damaged. It is not recommended for use in this system.
– Store the tapes at room temperature and do not put them too close to a magnetic field (for example, a transformer, TV or speaker).

Tape Playback

1 Press ≜ to open the tape deck door.
2 Insert a recorded tape and close the tape door.
- Load the tape with the open side down and the full spool to the left.



3 Press **TAPE** (TAPE 1•2) repeatedly to select tape deck 1 or tape deck 2.
➜ The selected tape deck number is displayed.

4 Press **PLAY** ▶ to start playback.

To stop playback

- Press ■.

To change the playback mode

- Press **AUTO REPLAY** repeatedly to select the different playback modes.
➜ "AUTO REPLAY" (⌶) or "ONCE" will appear on the display.

AUTO REPLAY …the tape will rewind automatically at the end of playback and replay again. It will replay up to a maximum of 20 times until you press ■.
ONCE ....the tape will playback the selected side once and then stop.

To rewind or fast forward during playback

- Press and hold ◀◀ or ▶▶ until the desired passage is reached, then release.
➜ The tape continues playing.
- The tape will stop automatically at the end of the rewinding or fast forwarding.
➜ During searching, the sound is reduced to a low volume.

Tape Operation/Recording

To rewind or fast forward when playback is stopped

1 Press ◀◀ or ▶▶.
2 Press ■ when you reached the desired passage.

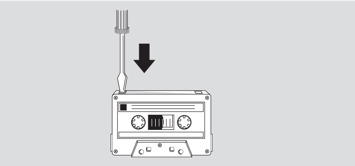
To reset tape counter number

- When in stop mode, press ■.
  ➜ "TP 1 000" or "TP2 000" will be displayed.

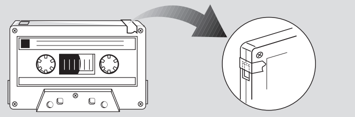
Notes:
– During rewinding or fast forwarding of a tape, it is also possible to select another source (CD, TUNER or AUX, for example).
– The tape counter will automatically set to zero after detecting end of tape.

General Information on Recording

- For recording, use only tape of IEC type I (normal tape) or IEC type II ($Cr0_2$).
- The recording level is set automatically, regardless of the position of the Volume, VAC, DSC and so forth.
- The tape is secured at both ends with leader tape. At the beginning and end of the tape, nothing will be recorded for six to seven seconds.
- To prevent accidental recording, break out the tab on the left shoulder of the tape side you want to protect.



- If "CHECK TAPE" is displayed, the protection tab has been broken. Put a piece of clear adhesive tape over the opening. Do not cover the $Cr0_2$ tape detection hole when covering the tab opening.



IMPORTANT!
– Recording is permissible if copyright or other rights of third parties are not infringed upon.
– Recording is possible only on tape deck 2.

Preparation for Recording

1 Press **TAPE** (TAPE 1•2) to select TAPE 2.
2 Load a recordable tape into tape deck 2 with full spool to the left.
3 Prepare the source to be recorded.
CD – load the disc(s).
TUNER – tune to the desired radio station.
TAPE – load the prerecorded tape into tape deck 1 with the full spool to the left.
AUX – connect external equipment.

When recording is in progress

➜ REC starts flashing.

- It is not possible to listen to another source except for dubbing tapes.
- It is not possible to activate the timer function.

One Touch Recording

1 Press **CD**, **TUNER** or **AUX** to select the source.
2 Start playback of the selected source.
3 Press **REC** to start recording.

To stop recording

- Press ■ on the system.

Note:
– One Touch Recording is not possible in TAPE mode, "SELECT SOURCE" will be displayed.

CD Synchro Recording

1 Press **CD 1•2•3** to select the disc.

- Press ⏮ or ⏭ to select the desired track to start recording.
- You can programme the tracks in the order you want them to be recorded (refer to "CD Operation - Programming the disc tracks").

2 Press **REC** to start recording.
➜ The disc will start playback automatically.

To select another track during recording

1 Press **PAUSE II** to interrupt recording.
2 Press ⏮ or ⏭ to select the desired track.
3 Press **PLAY ▶** to resume recording.

Tape Operation/Recording

To stop recording

- Press ■.
  ➜ Recording and disc playback will stop simultaneously.

Dubbing Tapes

1 Load the prerecorded tape in tape deck 1.

- You can set the tape to the desired passage where recording will start.

2 Press **DUBBING**.
➜ Playing and recording will start simultaneously.
➜ "DUB 000" will be displayed.

- Dubbing of tapes is possible on one side of the tape only. To continue record on the reverse side, at the end of side A, flip the tapes to side B and repeat the procedure.

To stop dubbing

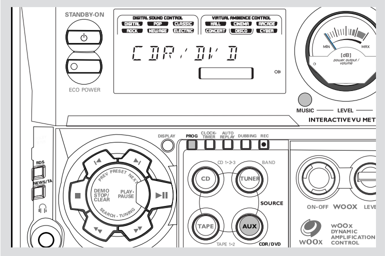
- Press ■.

Notes:
– Dubbing of tapes is possible only from tape deck 1 to tape deck 2.
– To ensure good dubbing, use tapes of the same length.
– You can listen to another source while dubbing.

Digital Recording via Digital Out

For CD digital recording, please refer to the instruction manuals for the CD recorder, digital audio equipment and so forth.

External Sources



Listening to External Sources

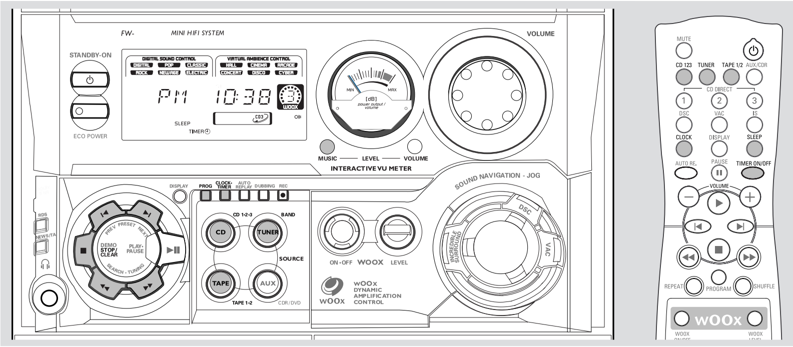
1 Connect the audio out terminals of the external equipment (TV, VCR, Laser Disc player, DVD player or CD Recorder) to the AUX/CDR IN terminals of your system.
2 Press **AUX** (CDR/DVD) repeatedly to select CDR/DVD mode or normal AUX mode.
➜ "CDR/DVD" or "AUX" will be displayed.

- When CDR/DVD mode is selected, any audio equipment connected to the LINE OUT terminals of this mini system will be muted. You will not be able to record or listen to the sound from the LINE OUT source.
- If the sound from the external source is distorted, select CDR/DVD mode for listening.

Notes:
– You are advised not to listen to and record from the same source simultaneously.
– All the navigation sound control features (DSC or VAC for example) are available for selection.
– Refer to the operating instructions for the connected equipment for details.

For Recording, please refer to "Tape Operation/Recording".

Clock/Timer


FW-
MINI HIFI SYSTEM
STANDBY-ON
ECO POWER
DIGITAL SOUND CONTROL
VIRTUAL AMBIENCE CONTROL
PM 10:38
SLEEP
TIMER
VOLUME
MUSIC LEVEL VOLUME
INTERACTIVE VU METER
SOUND NAVIGATION - JOG
DISPLAY
PROG
CLOCK•TIMER
DUBBING
REC
CD 1-2-3
BAND
CD
TUNER
TAPE
AUX
SOURCE
TAPE 1-2
CDR/DVD
ON•OFF
wOOx
LEVEL
wOOx DYNAMIC AMPLIFICATION CONTROL
DEMO STOP/CLEAR
PLAY•PAUSE
MUTE
CD 123
TUNER
TAPE 1/2
AUX/CDR
CD DIRECT
DSC
VAC
IS
CLOCK
DISPLAY
SLEEP
PAUSE
TIMER ON/OFF
VOLUME
REPEAT
PROGRAM
SHUFFLE
wOOx

IMPORTANT!

– When in Eco Power Standby mode, it is not possible to operate clock or timer function.

View Clock

The clock (if it is set) will be shown in Standby mode.

To view the clock in any source mode (CD or TUNER for example)

- Press **CLOCK•TIMER** (or **CLOCK** on the remote control).
  ➜ The clock will be displayed for a few seconds.
  ➜ If the clock has not been set, "--:--" will be displayed.

Clock Setting

The clock can be set in either 12-hour or 24-hour mode ("AM 12:00" or "00:00" for example)

1 Press **CLOCK•TIMER twice**.
2 Press **PROG** on the system repeatedly to select clock mode.
➜ If 12-hour mode is selected, "AM 12:00" will start flashing.
➜ If 24-hour mode is selected, "00:00" will start flashing.
3 Press ◀◀ or ▶▶ on the system repeatedly to set the hour.
4 Press |◀ or ▶| on the system repeatedly to set the minute.
5 Press **CLOCK•TIMER** again to store the setting.
➜ The clock will start working.

To exit without storing the setting

- Press ■ on the system.

Notes:

– The clock setting will be cancelled when the power cord is disconnected or if a power failure occurs.

– During clock setting, if no button is pressed within 90 seconds, the system will exit clock setting mode automatically.

– To set the clock automatically through the time information in the RDS signal, refer to "Radio Reception - RDS Time".

Timer Setting

The system can switch on to CD, TUNER, or TAPE 2 mode automatically at a preset time, serving as an alarm to wake you up.

IMPORTANT!

– Before setting the timer, ensure that the clock is set correctly.

– The timer will always be switched on after it has been set.

– The timer will not start if a recording is in progress.

– The volume of the timer will increase gradually from the minimum level until it reaches the last tuned volume level.

1 Press and hold **CLOCK•TIMER** for more than **two seconds** to select timer mode.
➜ "AM 12:00" or "00:00" or the last timer setting will start flashing.
➜ **TIMER** ⏲ will start flashing.
➜ The selected source will be lighted while other available sources are flashing.

Clock/Timer

2 Press **CD**, **TUNER** or **TAPE** to select the desired source.
- Before setting timer, make sure the music source has been prepared.
  CD – Load the disc(s). To start from a specific track, make a programme (refer to "CD Operation - Programming the disc tracks").
  TUNER – tune to the desired radio station.
  TAPE – load the prerecorded tape into tape deck 2.

3 Press ◀◀ or ▶▶ on the system repeatedly to set the hour for the timer to start.
4 Press |◀ or ▶| on the system repeatedly to set the minute for the timer to start.
5 Press **CLOCK•TIMER** to store the start time.
➜ "TIMER ON" will be displayed and followed by the set timer "XX:XX" and then the selected source.
➜ **TIMER** ⏲ will remain on the display.

- At the preset time, the selected source will play.

To exit without storing the setting

- Press ■ on the system.

Notes:

– If the selected source (CD) is not available when preset timer is reached, TUNER will be selected automatically.

– If the source selected is TAPE, and if the preset time is reached during dubbing, TUNER will be selected automatically.

– During timer setting, if no button is pressed within 90 seconds, the system will exit timer setting mode automatically.

To deactivate the TIMER

- Press **TIMER ON/OFF** on the remote control.
  ➜ The display will show "CANCEL" and **TIMER** ⏲ will disappear from the display.

To activate the TIMER

- Press **TIMER ON/OFF** on the remote control.
  ➜ The last set timer information will be shown for a few seconds and **TIMER** ⏲ will appear on the display.

Sleep Timer Setting

The sleep timer enables the system to switch to Standby mode automatically at a preset time.

1 Press **SLEEP** on the remote control repeatedly to select a preset time.
➜ The selections are as follows (time in minutes):
15 ➜ 30 ➜ 45 ➜ 60 ➜ OFF ➜ 15 …
➜ "SLEEP XX" or "OFF" will be displayed. "XX" is the time in minutes.
2 When you reach the desired length of time, stop pressing the **SLEEP** button.
➜ **SLEEP** will appear on the display, except for "OFF" mode.
➜ The Sleep Timer is now set. Before the system switches to standby mode, a countdown of 10 seconds will be displayed.
"SLEEP 10" ➜ "SLEEP 9".... ➜ "SLEEP 1" ➜ "SLEEP"

While SLEEP mode is activated

To check the remaining length of time

- Press **SLEEP once**.

To change the preset sleep timer

- Press **SLEEP twice**.
  ➜ The display will show the remaining time followed by the sequence of sleep timer options.

To deactivate the Sleep Timer

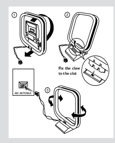
- Press **SLEEP** repeatedly until "OFF" is displayed, or press the **STANDBY ON** button.

Maintenance

Cleaning the Cabinet

- Use a soft cloth slightly moistened with a mild detergent solution. Do not use a solution containing alcohol, spirits, ammonia or abrasives.

Cleaning Discs



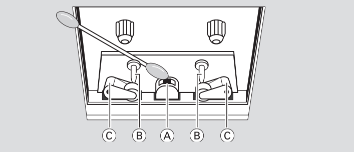
- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the centre out. Do not wipe in a circular motion.
- Do not use solvents such as benzine, thinner, commercially available cleaners, or antistatic spray intended for analogue records.

Cleaning the disc lens

- After prolonged use, dirt or dust may accumulate at the disc lens. To ensure good playback quality, clean the disc lens with Philips CD Lens Cleaner or any commercially available cleaner. Follow the instructions supplied with the cleaner.

Cleaning the Heads and the Tape Paths

- To ensure good recording and playback quality, clean the heads Ⓐ, the capstan(s) Ⓑ, and pressure roller(s) Ⓒ after every 50 hours of tape operation.
- Use a cotton swab slightly moistened with cleaning fluid or alcohol.
- You also can clean the heads by playing a cleaning tape once.



Demagnetising the heads

- Use a demagnetising tape available at your dealer.

Troubleshooting

WARNING

Under no circumstances should you try to repair the system yourself, as this will invalidate the warranty. Do not open the system as there is a risk of electric shock.

If a fault occurs, first check the points listed below before taking the system for repair. If you are unable to remedy a problem by following these hints, consult your dealer or service centre.

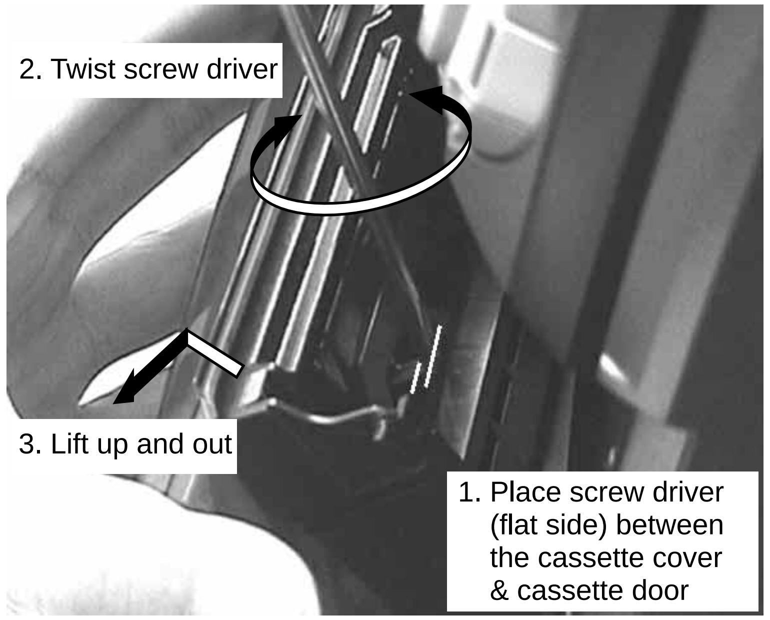
Problem	Solution
CD OPERATION	
"NO DISC" **is displayed.**	– Insert a disc. – Check if the disc is inserted upside down. – Wait until the moisture condensation at the lens has cleared. – Replace or clean the disc, see "Maintenance".
"DISC NOT FINALIZED" **is displayed.**	– Use a finalised CD-R(W) or CD-R.

Troubleshooting

RADIO RECEPTION	
Radio reception is poor.	– If the signal is too weak, adjust the antenna or connect an external antenna for better reception. – Increase the distance between the Mini HiFi System and your TV or VCR.
TAPE OPERATION/RECORDING	
Recording or playback cannot be made.	– Clean deck parts, see "Maintenance". – Use only NORMAL (IEC I) or IEC type II ($Cr0_2$) tape. – Apply a piece of adhesive tape over the missing tab space.
The tape deck door cannot open.	– Remove and reconnect the AC power plug and switch on the system again.
GENERAL	
The system does not react when buttons are pressed.	– Remove and reconnect the AC power plug and switch on the system again.
Sound cannot be heard or is of poor quality.	– Adjust the volume. – Disconnect the headphones. – Check that the speakers are connected correctly. – Check if the stripped speaker wire is clamped.
The left and right sound outputs are reversed.	– Check the speaker connections and location.
The remote control does not function properly.	– Select the source (CD or TUNER, for example) before pressing the function button (▶, ⏮, ⏭). – Reduce the distance between the remote control and the system. – Insert the batteries with their polarities (+/– signs) aligned as indicated. – Replace the batteries. – Point the remote control in the direction of the system's IR sensor.
The timer is not working.	– Set the clock correctly. – Press TIMER ON/OFF to switch on the timer. – If recording is in progress, stop recording.
Not all lighted buttons are showing light.	– Press DISPLAY to select NORMAL or MODE 1 display mode.
The Clock/Timer setting is erased.	– Power has been interrupted or the power cord has been disconnected. Reset the clock/timer.
The system displays features automatically and buttons start flashing.	– Press and hold DEMO STOP ■ on the system to switch off the demonstration.

DISMANTLING INSTRUCTIONS

Dismantling of the Cassette Cover

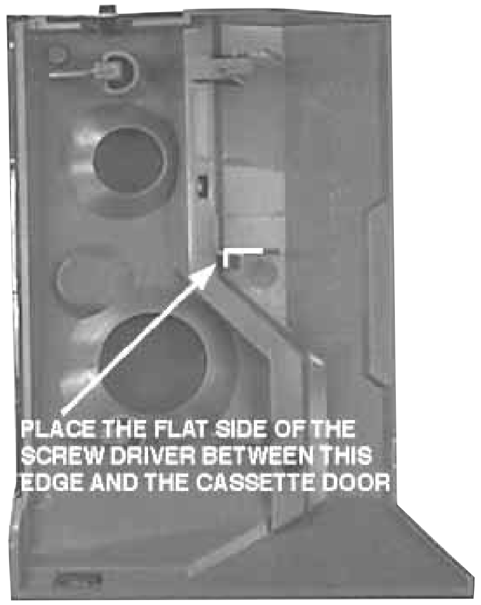


2. Twist screw driver

3. Lift up and out

1. Place screw driver (flat side) between the cassette cover & cassette door

Remove Cassette Cover

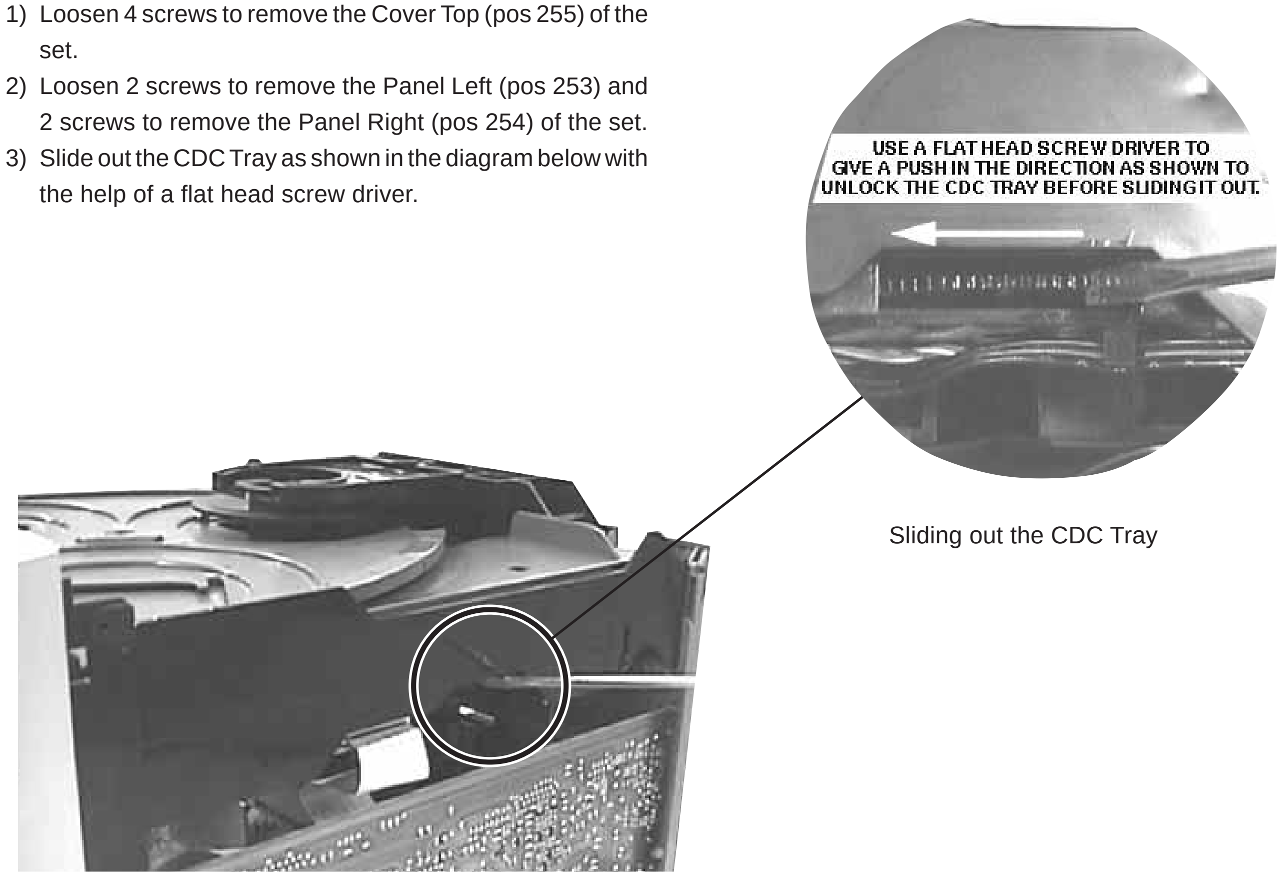


PLACE THE FLAT SIDE OF THE SCREW DRIVER BETWEEN THIS EDGE AND THE CASSETTE DOOR

Cassette Cover

Dismantling of the CDC Module and Front Panel

1) Loosen 4 screws to remove the Cover Top (pos 255) of the set.
2) Loosen 2 screws to remove the Panel Left (pos 253) and 2 screws to remove the Panel Right (pos 254) of the set.
3) Slide out the CDC Tray as shown in the diagram below with the help of a flat head screw driver.

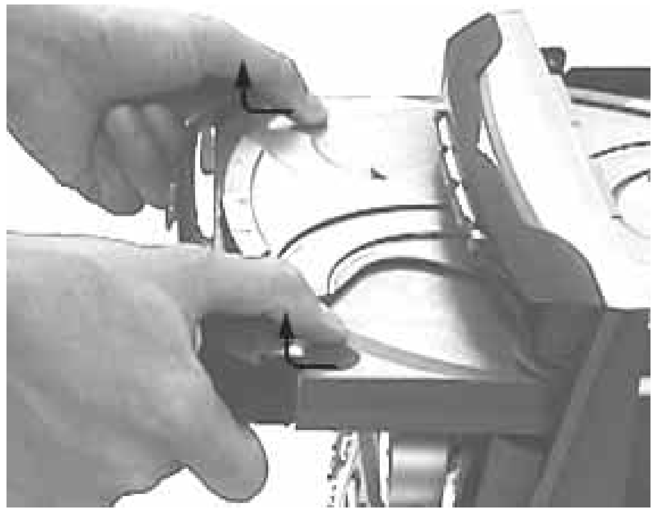


USE A FLAT HEAD SCREW DRIVER TO GIVE A PUSH IN THE DIRECTION AS SHOWN TO UNLOCK THE CDC TRAY BEFORE SLIDING IT OUT.

Sliding out the CDC Tray

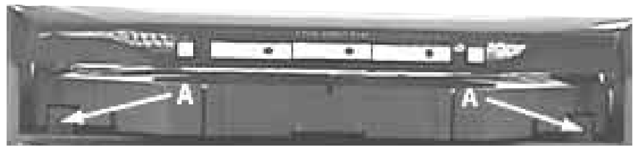
Dismantling of the CDC Module and Front Panel

4) Remove the Cover Tray CDC (pos 106) as indicated.

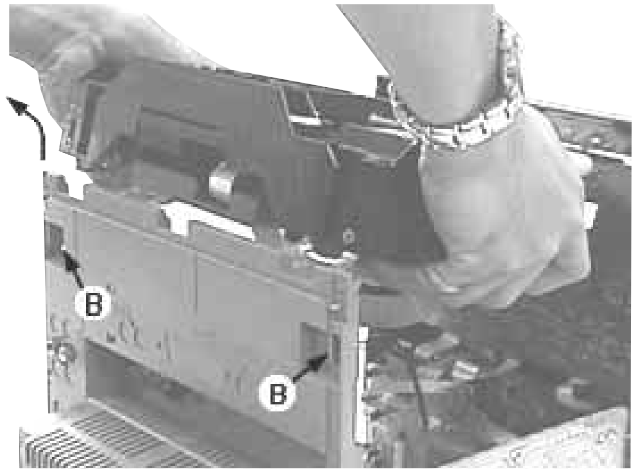


Remove Cover Tray CDC

5) Loosen 2 screws A and 2 screws B to remove the CDC Module (pos 1105) as indicated.
6) Remove 2 screws (pos 226) at the bottom to separate the Front Panel Assembly from the Plate Bottom (pos 265).



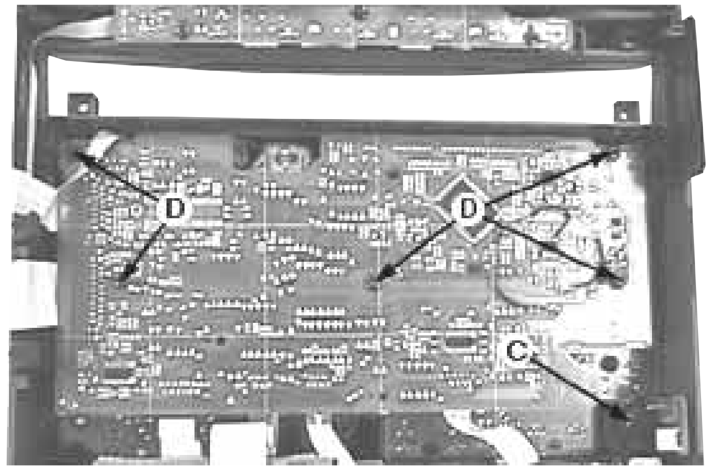
Front View CDC



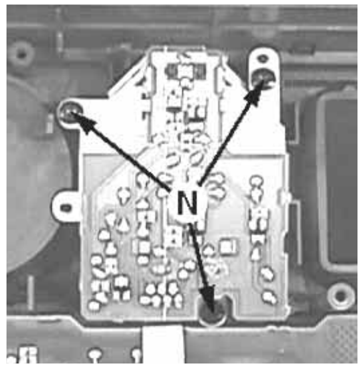
Remove CDC Module

Dismantling of the Front Display Board and Front Control Board

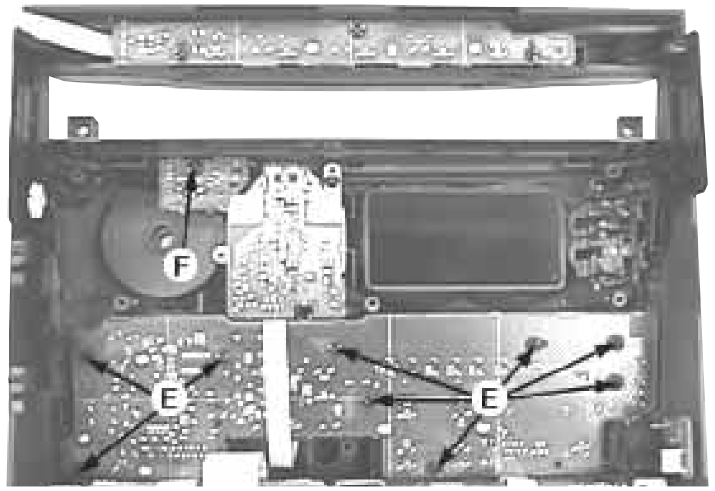
1) Remove 1 screw C as indicated to loosen the Headphone Board (pos 1101-B).
2) Remove 5 screws D as indicated to loosen the Front Display Board (pos 1101-A).
3) Remove 9 screws E as indicated to loosen the Front Control Board (pos 1107-A).
4) Remove 1 screw F as indicated to loosen the IR-Eye Board (pos 1107-D).
5) Remove 3 screws N as indicated to loosen the VU Meter Board (pos 1107-C).



Remove Front Display Board and Headphone Board



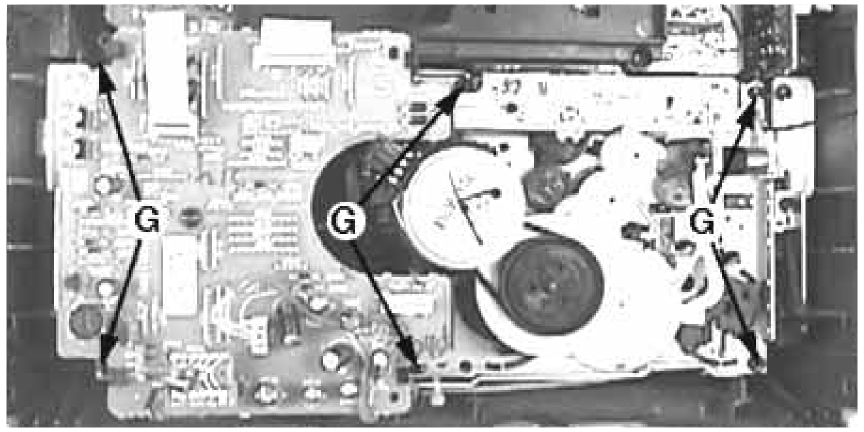
Remove VU Meter Board



Remove Front Control Board and IR-Eye Board

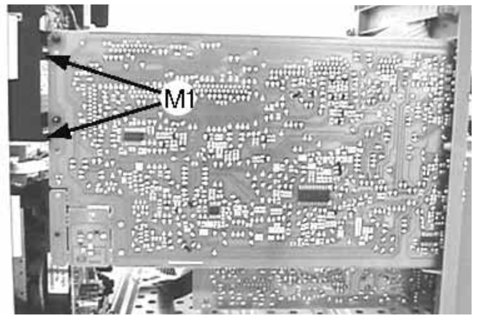
Dismantling of the ETF Tape Module

1) Remove 6 screws G as indicated to loosen the ETF Tape Module (pos 1104).

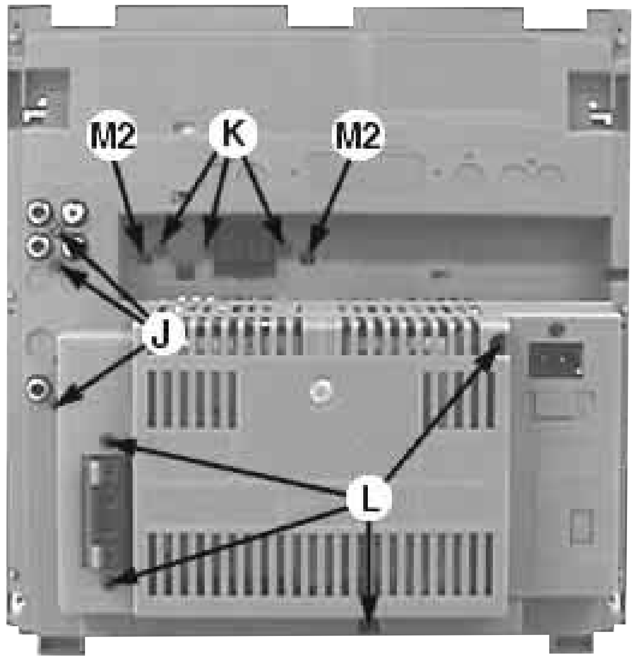


Dismantling of Rear Portion

1) Remove 3 screws J and uncatch M1 as indicated to loosen the AF Board (pos 1102-A).
2) Remove 3 screws K and uncatch M2 as indicated to loosen the Tuner Board (pos 1103).
3) Remove 4 screws L as indicated to loosen the Panel Rear (pos 256).



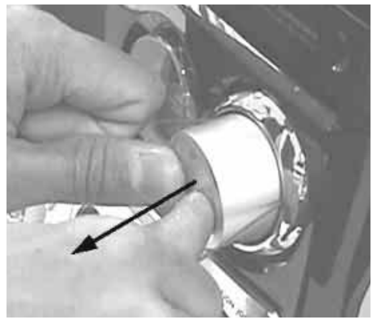
Remove AF Board



Repair Hints

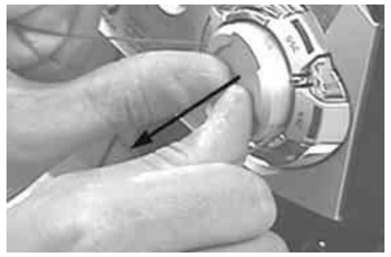
1) The Knob Volume Rotary (pos 117) can be remove by inserting a strong string into the slot and pull it out in the direction as indicated. See picture 1.

Picture 1



2) The Knob Jog Rotary (pos 140) can be remove by inserting a strong string into the slot and pull it out in the direction as indicated. See picture 2.

Picture 2

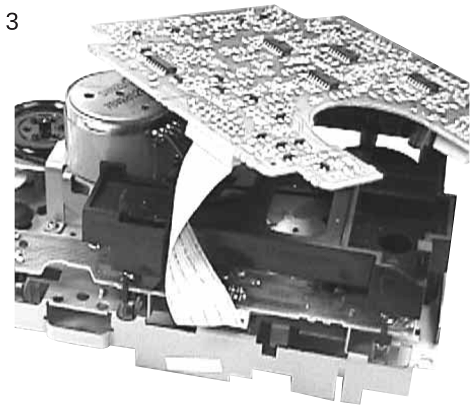


3) During repair it is possible to disconnect the Tuner board and CDC Module completely unless the fault is suspected to be in that area. This will not affect the performance of the rest of the set.

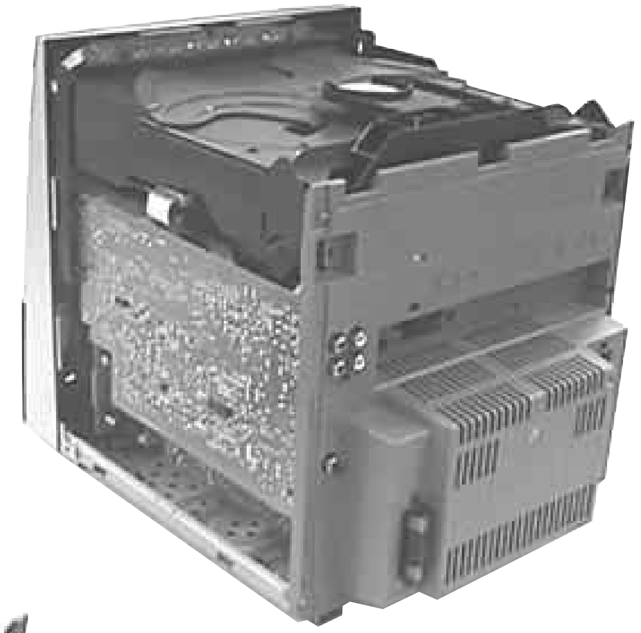
4) Due to the short flex cable wires in the ETF Module, the pc board should be disconnected and reconnected on the reverse side of the tape mechanism to keep it electrically connected during repair. See picture 3.

Note: The flex cables are very fragile, care should be taken not to damage them during repair. After repair, be very sure that the flex cables are inserted properly into the flex sockets before encasing, otherwise faults may occurs.

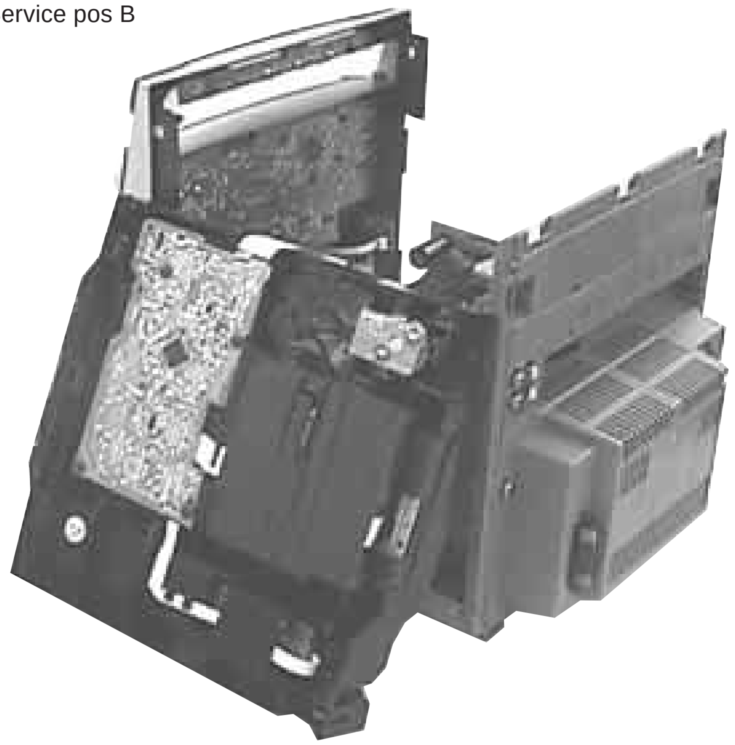
Picture 3



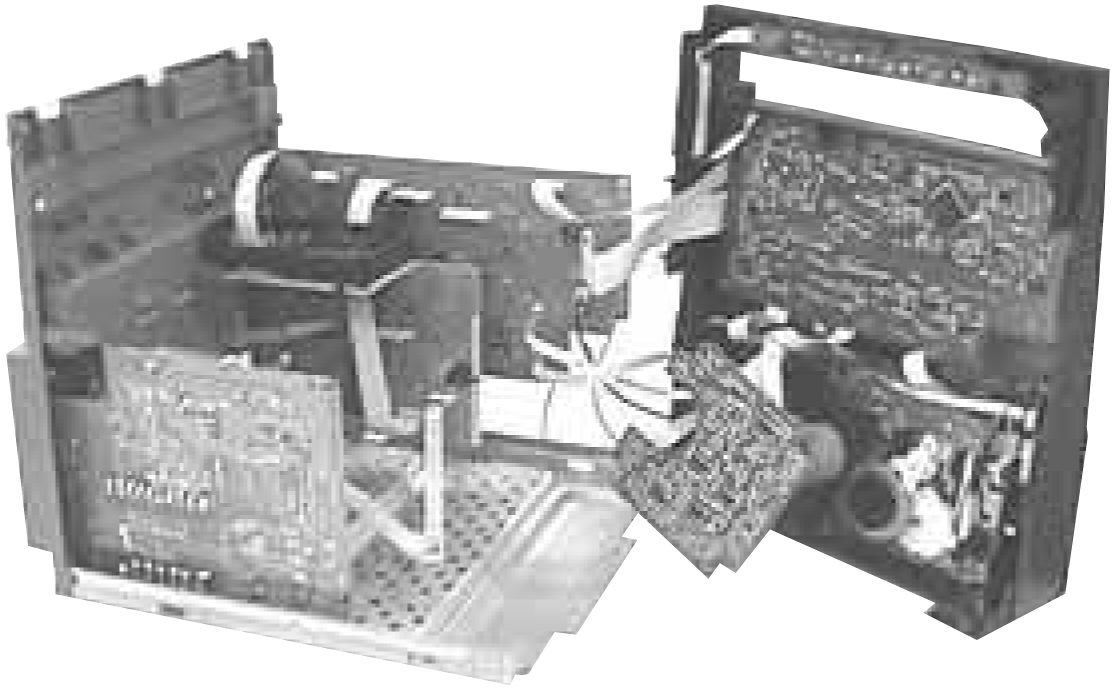
Service pos A



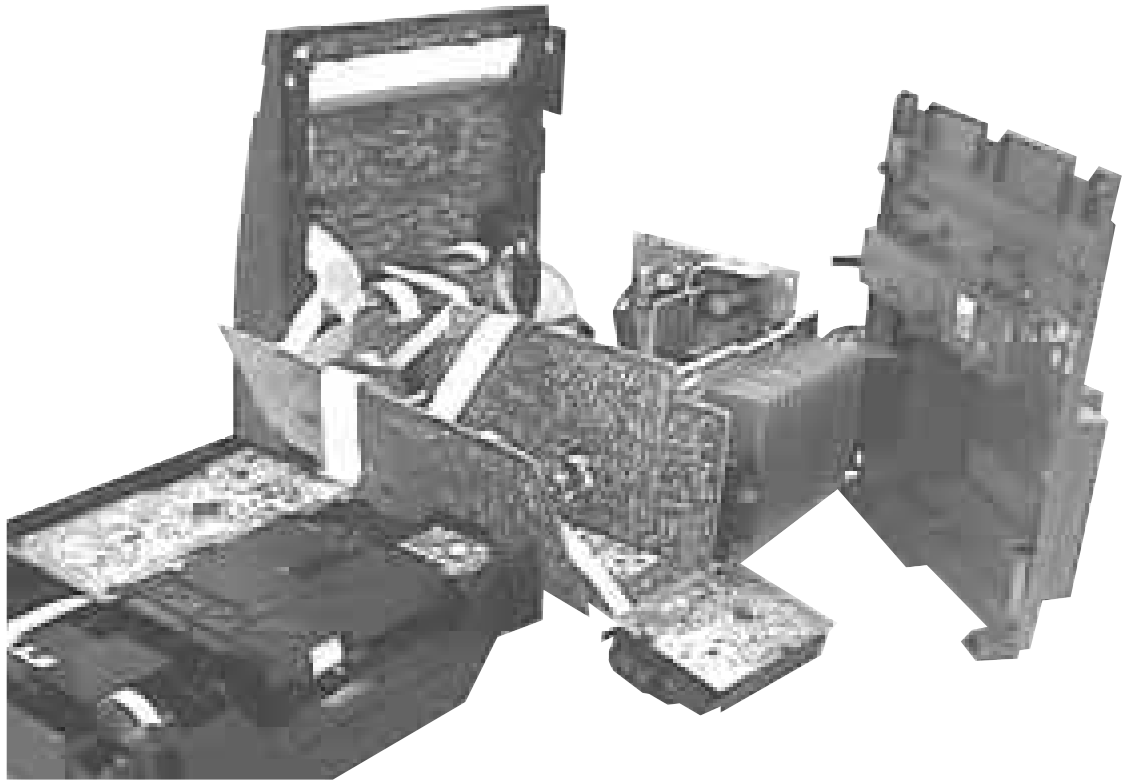
Service pos B



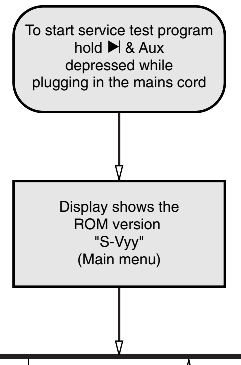
Service pos C



Service pos D



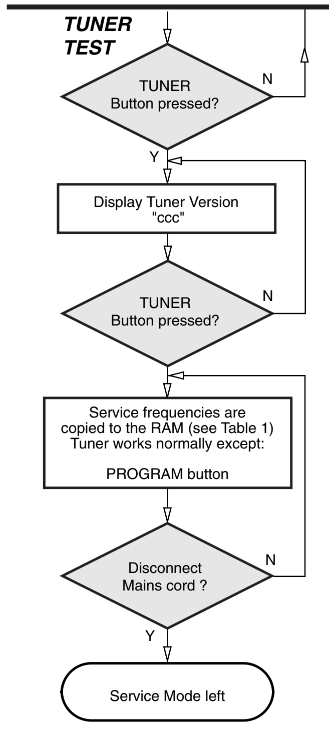
SERVICE TEST PROGRAM


To start service test program hold ▶| & Aux depressed while plugging in the mains cord
Display shows the ROM version "S-Vyy" (Main menu)

S refers to Service Mode

V refers to Version

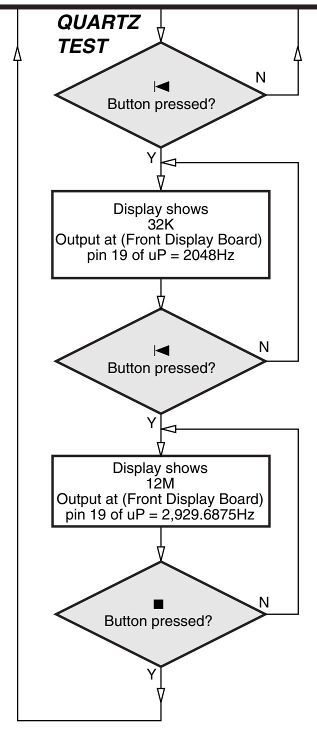
yy refers to Software version number of the µProcessor (counting up from 01 to 99)

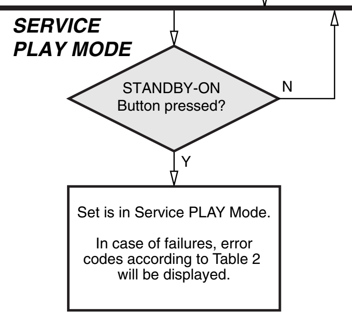

TUNER TEST
TUNER Button pressed?
N
Y
Display Tuner Version "ccc"
TUNER Button pressed?
N
Service frequencies are copied to the RAM (see Table 1) Tuner works normally except:
PROGRAM button
Disconnect Mains cord ?
N
Y
Service Mode left

PRESET	Europe "EUR"	East Eur. "EAS"	East Eur. Extended-band "EAS"	USA "USA"	Oversea "OSE"
1	87.5MHz	87.5MHz	65.81MHz	87.5MHz	87.5MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz
3	531kHz	531kHz	74MHz	530kHz	531/530kHz*
4	1602kHz	1602kHz	87.5MHz	1700kHz	1602/1700kHz*
5	558kHz	558kHz	531kHz	560kHz	558/560kHz*
6	1494kHz	1494kHz	1602kHz	1500kHz	1494/1500kHz*
7	153kHz	87.5MHz	558kHz	98MHz	87.5MHz
8	279kHz	87.5MHz	1494kHz	87.5MHz	87.5MHz
9	198kHz	87.5MHz	98MHz	87.5MHz	87.5MHz
10	98MHz	87.5MHz	70.01MHz	87.5MHz	87.5MHz
11	87.5MHz	98MHz	65.81MHz	87.5MHz	98MHz

Table 1

Note: * Depending on the selected grid frequency (9 or 10kHz)
By holding the TUNER and ►► buttons depressed while switching on the Mains supply, one of the undermentioned features will be activated:
- the tuning grid frequency is toggled between 9kHz and 10kHz for the Oversea (/21) version.
- the extended FM1 (65.81MHz - 74MHz) is toggled on and off for East Eur. (/34) version.


QUARTZ TEST
|◄ Button pressed?
N
Y
Display shows 32K Output at (Front Display Board) pin 19 of uP = 2048Hz
|◄ Button pressed?
N
Y
Display shows 12M Output at (Front Display Board) pin 19 of uP = 2,929.6875Hz
■ Button pressed?
N
Y


SERVICE PLAY MODE
STANDBY-ON Button pressed?
N
Y
Set is in Service PLAY Mode.
In case of failures, error codes according to Table 2 will be displayed.

The Service Play Mode is intended to detect and identify the failures in the CD Mode.

In this mode the electronics will still function even when an error is detected so that repair activities can be carried out.

Error code	Error Description
E1000	Focus Error Triggered when the focus could not be found within a certain time when starting up the CD or when the focus is lost for a certain time during play.
E1001	Radial Error Triggered when the radial servo is off-track for a certain time during play.
E1002	Sledge In Error The sledge did not reach its inner position (inner-switch is still close) before approximately 6 Sec. have passed by. Inner-switch or sledge motor problem.
E1003	Sledge Out Error The sledge did not come out of its inner position (inner-switch is still open) before approximately 250 mSec. have passed by. Inner-switch or sledge motor problem.
E1005	Jump-offtrack error Triggered in normal play when the jump destination could not be found within a certain time. When this error occurred, software will try to recover by initiating the jump command again. If it is recoverable, the disc will continue to play.
E1006	Subcode Error Triggered when a new subcode was missing for a certain time during play.
E1007	PLL Error The Phase Lock Loop could not lock within a certain time.
E1008	Turntable Motor Error Generated when the CD could not reached 75% of speed during startup within a certain time. Discmotor problem.
E1020	Focus Search Error The focus point has not been found within a certain time.
E1070	The carousel switch is not open within certain time. This can happen when either the switch is defective and closed all the time, or when the carousel is blocked when located exactly at a disc position.
E1071	The carousel position switch did not close within a certain time. This can happen when the switch is defective and never closes electrically, or when the carousel is blocked in between two disc positions. The time-out is approximately 5 Sec.
E1079	The drawer could not enter the inside position is opening again. This can be caused because the drawer is blocked by something and cannot go fully inside, or the drawer switch is defective and does not close.

Table 2

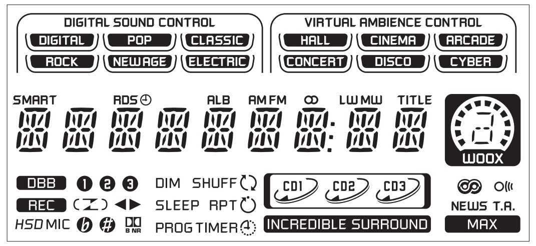

DIGITAL SOUND CONTROL
DIGITAL
POP
CLASSIC
ROCK
NEWAGE
ELECTRIC
VIRTUAL AMBIENCE CONTROL
HALL
CINEMA
ARCADE
CONCERT
DISCO
CYBER
SMART
RDS
ALB
AM FM
LW MW
TITLE
WOOX
DBB
REC
HSD MIC
DIM
SHUFF
SLEEP
RPT
PROG TIMER
CD1
CD2
CD3
INCREDIBLE SURROUND
NEWS T.A.
MAX

Figure 1

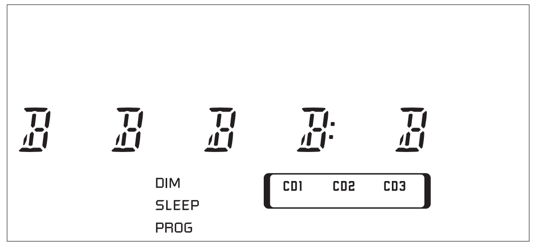
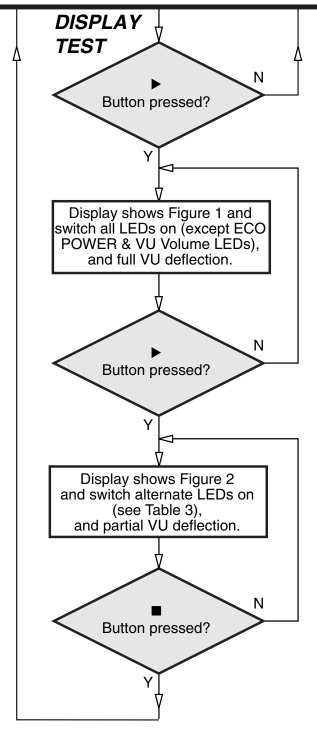
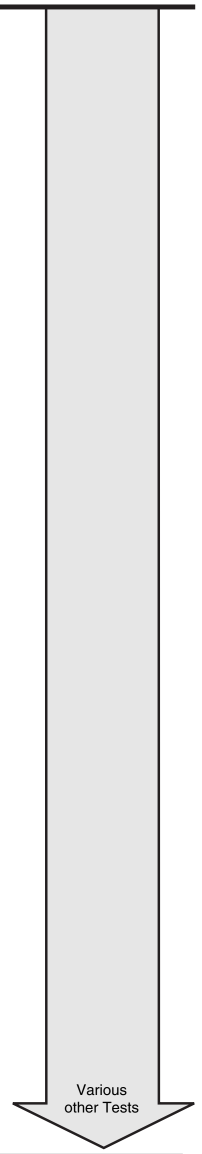

DIM
SLEEP
PROG
CD1
CD2
CD3

Figure 2


DISPLAY TEST
► Button pressed?
N
Y
Display shows Figure 1 and switch all LEDs on (except ECO POWER & VU Volume LEDs), and full VU deflection.
► Button pressed?
N
Y
Display shows Figure 2 and switch alternate LEDs on (see Table 3), and partial VU deflection.
■ Button pressed?
N
Y

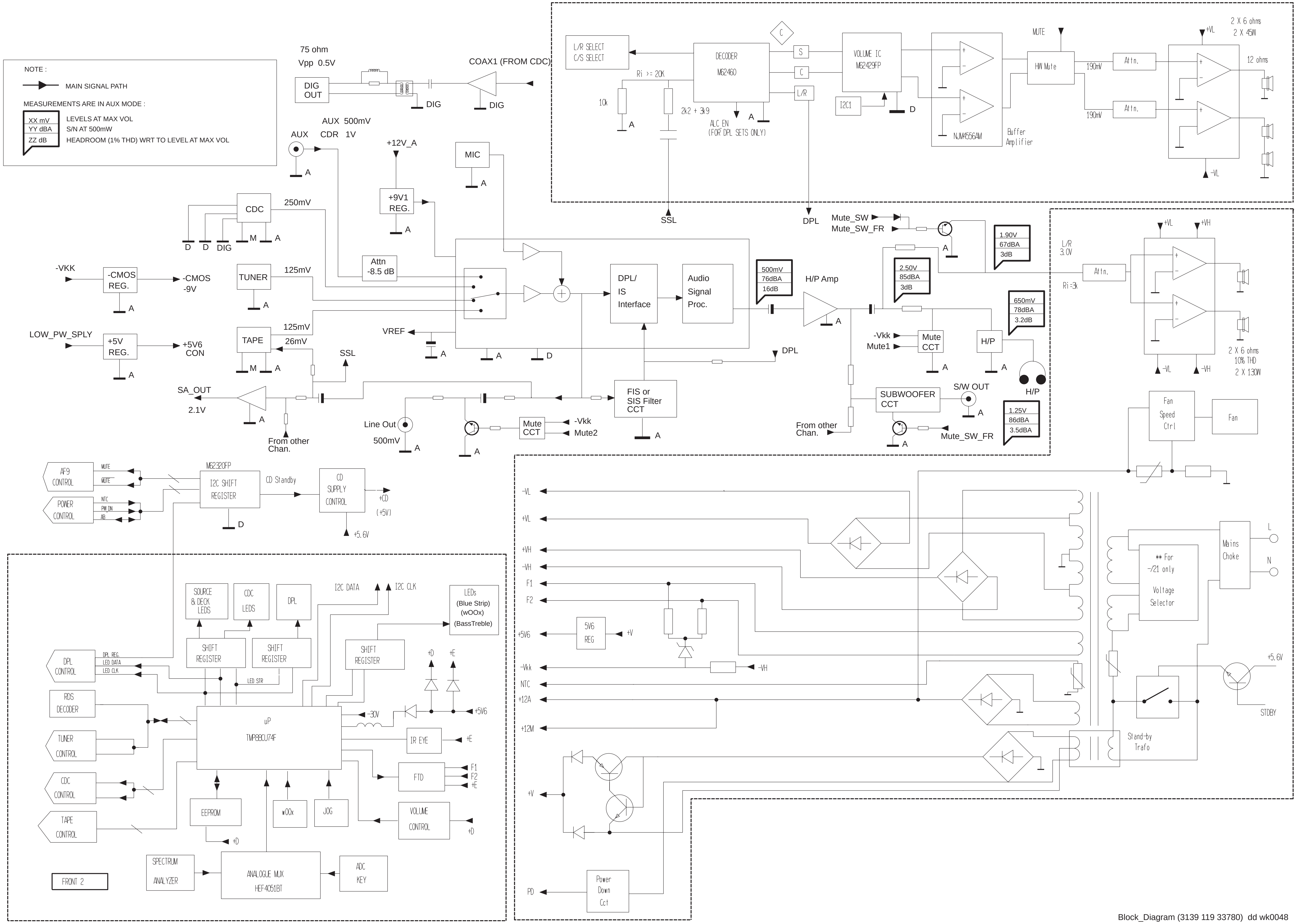
LEDs	FW-C500 , FW-C550	FW-C700 , FW-C720 FW-C780	FW-P750
DISC 1	On	On	On
DISC 3	On	On	On
TAPE	On	On	On
TUNER	On	On	On
CENTRE			On
SURROUND LEFT			On
STEREO RIGHT			On
VAC	On	On	On
DBB	On		On
VU BACK LIGHT	On	On	On
VU VOLUME	On	On	On

Table 3

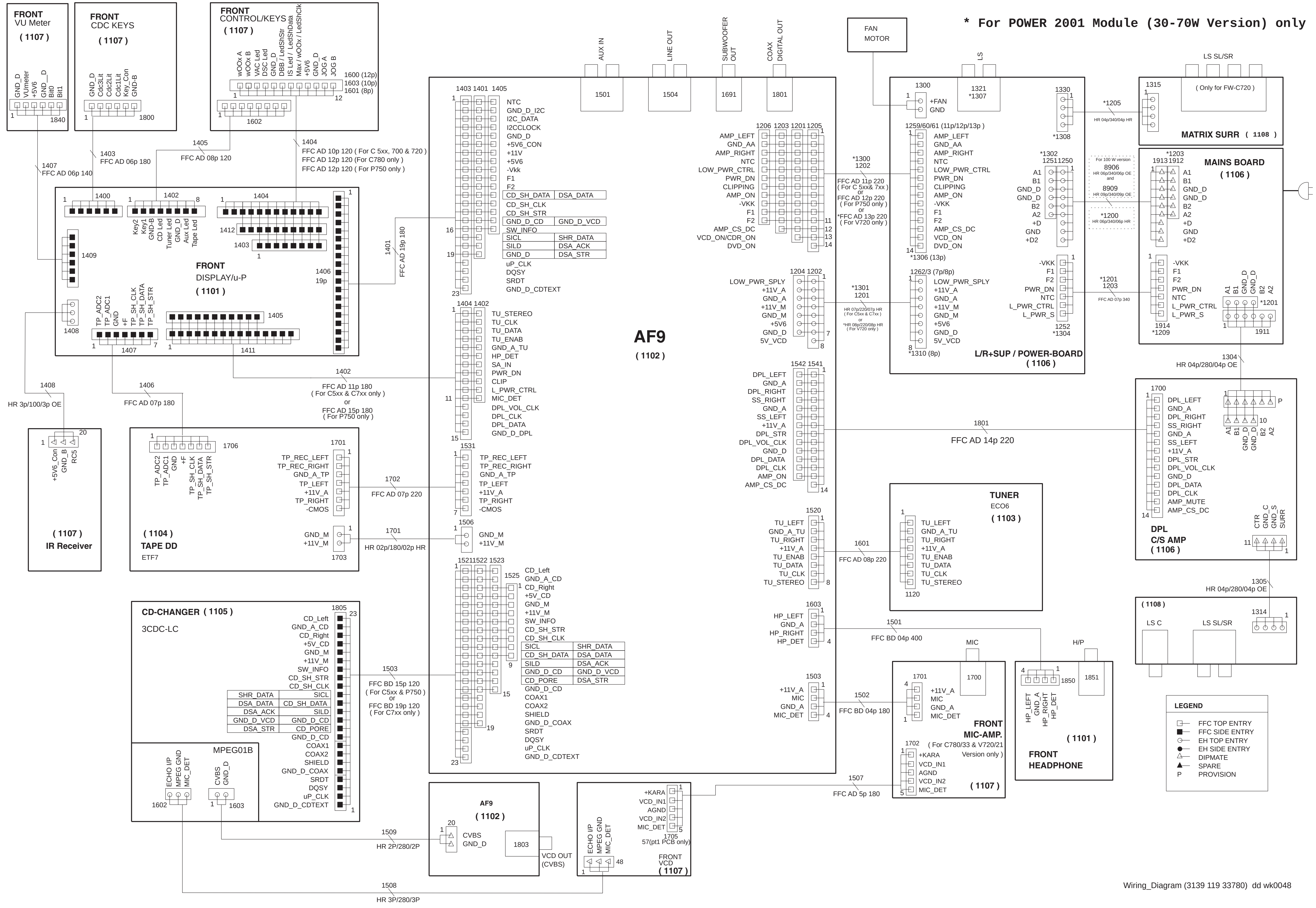

Various other Tests

TEST	***Activated with***	***ACTION***
EEPROM TEST	►► ■ to Exit	A test pattern will be sent to the EEPROM. "PASS" is displayed if the uProcessor read back the test pattern correctly, otherwise "ERROR" will be displayed.
EEPROM FORMAT TEST	◄◄	Load default data. Display shows "NEW" for 1 second. ***Caution!*** ***All presets from the customer will be lost!!***
ROTARY ENCODER TEST	Rotary Volume Knob or Jog Shuttle Knob	Display shows value for 2 seconds. Values increases or decreases in steps of 1 until 0 (Min.) or 40 (Max.) is reached.
LEAVE SERVICE TESTPROGRAM	Disconnect mains cord	

SET BLOCK DIAGRAM


NOTE :
MAIN SIGNAL PATH
MEASUREMENTS ARE IN AUX MODE :
XX mV
YY dBA
ZZ dB
LEVELS AT MAX VOL
S/N AT 500mW
HEADROOM (1% THD) WRT TO LEVEL AT MAX VOL
75 ohm
Vpp 0.5V
DIG OUT
DIG
DIG
COAX1 (FROM CDC)
AUX 500mV
CDR 1V
AUX
A
+12V_A
+9V1 REG.
MIC
CDC
250mV
D
D
DIG
M
A
Attn -8.5 dB
-VKK
-CMOS REG.
-CMOS -9V
TUNER
125mV
LOW_PW_SPLY
+5V REG.
+5V6 CON
TAPE
125mV
26mV
VREF
SSL
DPL/ IS Interface
Audio Signal Proc.
FIS or SIS Filter CCT
SA_OUT
2.1V
From other Chan.
Line Out
500mV
Mute CCT
-Vkk
Mute2
DPL
L/R SELECT
C/S SELECT
DECODER
M62460
Ri >= 20K
10k
2k2 + 3k9
ALC EN (FOR DPL SETS ONLY)
S
C
L/R
VOLUME IC
M62429FP
I2C1
NJM4556AM
Buffer Amplifier
MUTE
HW Mute
190mV
190mV
Attn.
Attn.
+VL
-VL
2 X 6 ohms
2 X 45W
12 ohms
SSL
DPL
Mute_SW
Mute_SW_FR
1.90V
67dBA
3dB
500mV
76dBA
16dB
H/P Amp
2.50V
85dBA
3dB
650mV
78dBA
3.2dB
-Vkk
Mute1
Mute CCT
H/P
H/P
SUBWOOFER CCT
S/W OUT
From other Chan.
Mute_SW_FR
1.25V
86dBA
3.5dBA
L/R 3.0V
Ri=3k
Attn.
+VH
-VH
2 X 6 ohms
10% THD
2 X 130W
Fan Speed Ctrl
Fan
AF9 CONTROL
MUTE
MUTE
POWER CONTROL
NTC
PW_DN
AB
M62320FP
I2C SHIFT REGISTER
CD Standby
CD SUPPLY CONTROL
+CD (+5V)
+5.6V
SOURCE & DECK LEDS
CDC LEDS
DPL
I2C DATA
I2C CLK
LEDs (Blue Strip) (wOOx) (BassTreble)
SHIFT REGISTER
SHIFT REGISTER
SHIFT REGISTER
LED STR
DPL CONTROL
DPL_REG
LED DATA
LED CLK
RDS DECODER
TUNER CONTROL
CDC CONTROL
TAPE CONTROL
uP
TMP88CU74F
-30V
+D
+E
+5V6
IR EYE
+E
FTD
F1
F2
+E
EEPROM
+D
wOOx
JOG
VOLUME CONTROL
+D
SPECTRUM ANALYZER
ANALOGUE MUX
HEF4051BT
ADC KEY
FRONT 2
-VL
+VL
+VH
-VH
F1
F2
+5V6
5V6 REG
+V
-Vkk
-VH
NTC
+12A
+12M
+V
PD
Power Down Cct
L
N
Mains Choke
** For -/21 only
Voltage Selector
+5.6V
STDBY
Stand-by Trafo

SET WIRING DIAGRAM


FRONT VU Meter (1107)
GND_D VUmeter +5V6 GND__D Bit0 Bit1
1840
FRONT CDC KEYS (1107)
GND_D Cdc3Lit Cdc2Lit Cdc1Lit Key_Con GND-B
1800
FRONT CONTROL/KEYS (1107)
wOOx A wOOx B VAC Led DSC Led GND_D DBB / LedShStr IS Led / LedShData Max / wOOx / LedShClk +5V6 GND_D JOG A JOG B
1600 (12p) 1603 (10p) 1601 (8p)
1602
1407 FFC AD 06p 140
1403 FFC AD 06p 180
1405 FFC AD 08p 120
1404 FFC AD 10p 120 (For C 5xx, 700 & 720) FFC AD 12p 120 (For C780 only) FFC AD 12p 120 (For P750 only)
1400 1402 1404 1412 1403 1409 1406 19p
Key2 Key1 GND-B CD Led Tuner Led GND_D Aux Led Tape Led
FRONT DISPLAY/u-P (1101)
1408 1407 1411 1405
TP_ADC2 TP_ADC1 GND +F TP_SH_CLK TP_SH_DATA TP_SH_STR
1401 FFC AD 19p 180
1408 HR 3p/100/3p OE
1406 FFC AD 07p 180
+5V6_Con GND_B RC5
(1107) IR Receiver
1706 TP_ADC2 TP_ADC1 GND +F TP_SH_CLK TP_SH_DATA TP_SH_STR
(1104) TAPE DD ETF7
1701 TP_REC_LEFT TP_REC_RIGHT GND_A_TP TP_LEFT +11V_A TP_RIGHT -CMOS
GND_M +11V_M 1703
1702 FFC AD 07p 220
1701 HR 02p/180/02p HR
1402 FFC AD 11p 180 (For C5xx & C7xx only) or FFC AD 15p 180 (For P750 only)
CD-CHANGER (1105) 3CDC-LC
1805 CD_Left GND_A_CD CD_Right +5V_CD GND_M +11V_M SW_INFO CD_SH_STR CD_SH_CLK SICL CD_SH_DATA SILD CD_PORE GND_D_CD COAX1 COAX2 SHIELD GND_D_COAX SRDT DQSY uP_CLK GND_D_CDTEXT
SHR_DATA DSA_DATA DSA_ACK GND_D_VCD DSA_STR GND_D_CD
MPEG01B ECHO I/P MPEG GND MIC_DET 1602 CVBS GND_D 1603
1503 FFC BD 15p 120 (For C5xx & P750) or FFC BD 19p 120 (For C7xx only)
1509 HR 2P/280/2P
1508 HR 3P/280/3P
AUX IN LINE OUT SUBWOOFER OUT COAX DIGITAL OUT
1501 1504 1691 1801
1403 1401 1405
NTC GND_D_I2C I2C_DATA I2CCLOCK GND_D +5V6_CON +11V +5V6 -Vkk F1 F2 CD_SH_DATA DSA_DATA CD_SH_CLK CD_SH_STR GND_D_CD GND_D_VCD SW_INFO SICL SHR_DATA SILD DSA_ACK GND_D DSA_STR uP_CLK DQSY SRDT GND_D_CDTEXT
1404 1402 TU_STEREO TU_CLK TU_DATA TU_ENAB GND_A_TU HP_DET SA_IN PWR_DN CLIP L_PWR_CTRL MIC_DET DPL_VOL_CLK DPL_CLK DPL_DATA GND_D_DPL
1531 TP_REC_LEFT TP_REC_RIGHT GND_A_TP TP_LEFT +11V_A TP_RIGHT -CMOS
1506 GND_M +11V_M
1521 1522 1523 1525 CD_Left GND_A_CD CD_Right +5V_CD GND_M +11V_M SW_INFO CD_SH_STR CD_SH_CLK SICL SHR_DATA CD_SH_DATA DSA_DATA SILD DSA_ACK GND_D_CD GND_D_VCD CD_PORE DSA_STR GND_D_CD COAX1 COAX2 SHIELD GND_D_COAX SRDT DQSY uP_CLK GND_D_CDTEXT
AF9 (1102)
1206 1203 1201 1205 AMP_LEFT GND_AA AMP_RIGHT NTC LOW_PWR_CTRL PWR_DN CLIPPING AMP_ON -VKK F1 F2 AMP_CS_DC VCD_ON/CDR_ON DVD_ON
1204 1202 LOW_PWR_SPLY +11V_A GND_A +11V_M GND_M +5V6 GND_D 5V_VCD
1542 1541 DPL_LEFT GND_A DPL_RIGHT SS_RIGHT GND_A SS_LEFT +11V_A DPL_STR DPL_VOL_CLK GND_D DPL_DATA DPL_CLK AMP_ON AMP_CS_DC
1520 TU_LEFT GND_A_TU TU_RIGHT +11V_A TU_ENAB TU_DATA TU_CLK TU_STEREO
1603 HP_LEFT GND_A HP_RIGHT HP_DET
1503 +11V_A MIC GND_A MIC_DET
AF9 (1102) 20 CVBS GND_D 1803 VCD OUT (CVBS)
+KARA VCD_IN1 AGND VCD_IN2 MIC_DET 1705 57(pt1 PCB only) ECHO I/P MPEG GND MIC_DET 48 FRONT VCD (1107)
1507 FFC AD 5p 180
*1300 1202 FFC AD 11p 220 (For C 5xx& 7xx) or FFC AD 12p 220 (For P750 only) or *FFC AD 13p 220 (For V720 only)
*1301 1201 HR 07p/220/07p HR (For C5xx & C7xx) or *HR 08p/220/08p HR (For V720 only)
1801 FFC AD 14p 220
1601 FFC AD 08p 220
1501 FFC BD 04p 400
1502 FFC BD 04p 180
FAN MOTOR LS
1300 +FAN GND 1321 *1307 1330 *1308
1259/60/61 (11p/12p/13p) AMP_LEFT GND_AA AMP_RIGHT NTC LOW_PWR_CTRL PWR_DN CLIPPING AMP_ON -VKK F1 F2 AMP_CS_DC VCD_ON DVD_ON *1306 (13p)
1262/3 (7p/8p) LOW_PWR_SPLY +11V_A GND_A +11V_M GND_M +5V6 GND_D 5V_VCD *1310 (8p)
*1302 1251 1250 A1 B1 GND_D GND_D B2 A2 +D GND +D2
-VKK F1 F2 PWR_DN NTC L_PWR_CTRL L_PWR_S 1252 *1304
L/R+SUP / POWER-BOARD (1106)
*1205 HR 04p/340/04p HR
For 100 W version 8906 HR 06p/340/06p OE and 8909 HR 09p/340/09p OE
*1200 HR 06p/340/06p HR
*1201 1203 FFC AD 07p 340
LS SL/SR 1315 (Only for FW-C720) MATRIX SURR (1108)
*1203 1913 1912 MAINS BOARD (1106) A1 B1 GND_D GND_D B2 A2 +D GND +D2
-VKK F1 F2 PWR_DN NTC L_PWR_CTRL L_PWR_S 1914 *1209 A1 B1 GND_D GND_D B2 A2 *1201 1911
1304 HR 04p/280/04p OE
1700 DPL_LEFT GND_A DPL_RIGHT SS_RIGHT GND_A SS_LEFT +11V_A DPL_STR DPL_VOL_CLK GND_D DPL_DATA DPL_CLK AMP_MUTE AMP_CS_DC P 10 A1 B1 GND_D GND_D B2 A2 CTR GND_C GND_S SURR
DPL C/S AMP (1106)
TUNER ECO6 (1103) TU_LEFT GND_A_TU TU_RIGHT +11V_A TU_ENAB TU_DATA TU_CLK TU_STEREO 1120
1305 HR 04p/280/04p OE
(1108) LS C LS SL/SR 1314
MIC 1701 1700 +11V_A MIC GND_A MIC_DET FRONT MIC-AMP. 1702 (For C780/33 & V720/21 Version only) +KARA VCD_IN1 AGND VCD_IN2 MIC_DET (1107)
H/P 1850 1851 HP_LEFT GND_A HP_RIGHT HP_DET (1101) FRONT HEADPHONE
LEGEND
FFC TOP ENTRY
FFC SIDE ENTRY
EH TOP ENTRY
EH SIDE ENTRY
DIPMATE
SPARE
P PROVISION

* For POWER 2001 Module (30-70W Version) only

Wiring_Diagram (3139 119 33780) dd wk0048

FRONT CONTROL BOARD

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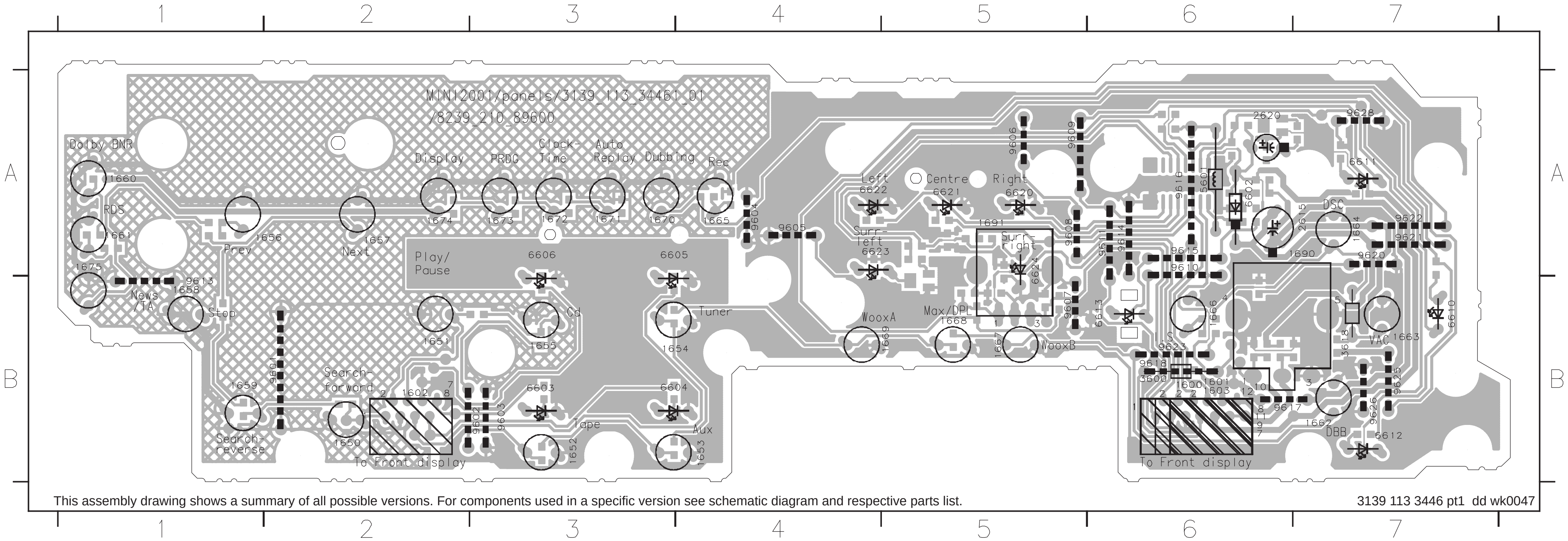
Key-CDC Part - Layout & Circuit diagram 5-4
VU Meter Part - Layout & Circuit diagram 5-4
Karaoke Part - Layout & Circuit diagram 5-5
VCD Interface Part - Layout & Circuit diagram 5-5
Electrical parts list 5-6

REMARKS :

FRONT CONTROL BOARD - COMPONENT LAYOUT

1600	B6	1650	B2	1654	B3	1658	B1	1662	B7	1666	B6	1670	A3	1674	A2	2615	A7	5601	A6	6605	A3	6612	B7	6622	A4	9602	B3	9606	A5	9610	A6	9615	A6	9620	A7	9625	B7
1601	B6	1651	B2	1655	B3	1659	B1	1663	B7	1667	B5	1671	A3	1675	A1	2620	A6	6602	A6	6606	A3	6613	B6	6623	A4	9603	B3	9607	B5	9611	A6	9616	A6	9621	A7	9626	B7
1602	B2	1652	B3	1656	A2	1660	A1	1664	A7	1668	B5	1672	A3	1690	A7	3600	B6	6603	B3	6610	B7	6620	A5	6624	A5	9604	A4	9608	A5	9613	B1	9617	B6	9622	A7	9628	A7
1603	B6	1653	B4	1657	A2	1661	A1	1665	A4	1669	B5	1673	A3	1691	A5	3618	B7	6604	B3	6611	A7	6621	A5	9601	B2	9605	A4	9609	A5	9614	A6	9618	B6	9623	B6		

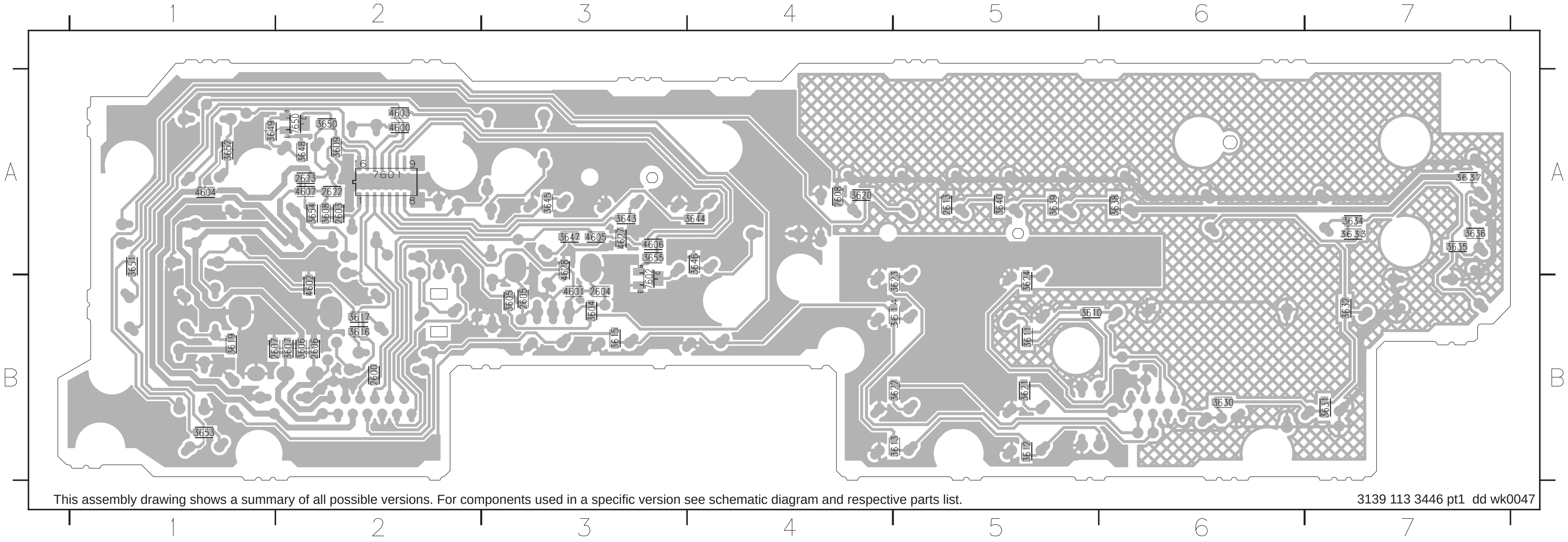

1
2
3
4
5
6
7
A
B
MINI2001/panels/3139_113_34461_01
/8239_210_89600
Dolby BNR
1660
RDS
1661
1675
News /TA
9613
1658
Stop
Prev
1656
Next
1657
Display
PROG
Clock-Time
Auto Replay
Dubbing
Rec
1674
1673
1672
1671
1670
1665
9604
9605
Play/ Pause
6606
6605
Cd
Tuner
1651
1655
1654
1659
9601
Search forward
1602
9602
9603
6603
6604
Tape
Aux
Search reverse
1650
1652
1653
To Front display
Left
6622
Centre
6621
Right
6620
Surr-left
6623
Surr-right
6624
1691
9606
9609
9608
9607
WooxA
1669
Max/DPL
1668
1667
WooxB
2620
9628
5601
6602
9616
9614
9611
9615
9610
6613
6611
DSC
2615
1664
9622
9621
9620
1690
1666
9623
9618
3600
1600
1601
1603
9617
3618
1663
VAC
6610
9625
9626
1662
DBB
6612
To Front display

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3446 pt1 dd wk0047

FRONT CONTROL BOARD - CHIP LAYOUT

2600	B2	2605	B3	2608	A4	2623	A2	3606	B2	3609	A2	3612	B5	3615	B3	3619	B1	3622	B5	3630	B6	3633	A7	3636	A7	3639	A5	3644	A4	3647	A3	3650	A2	3653	B1	4600	A2	4603	A2	4606	A3	4628	A3	7650	A2
2603	A2	2606	B2	2613	A5	3604	B3	3607	B2	3610	B5	3613	B5	3616	B2	3620	A4	3623	B5	3631	B7	3634	A7	3637	A7	3640	A5	3645	A3	3648	A2	3651	A1	3654	A2	4601	B3	4604	A1	4607	A2	7601	A2		
2604	B3	2607	B1	2622	A2	3605	B3	3608	A2	3611	B5	3614	B5	3617	B2	3621	B5	3624	B5	3632	B7	3635	A7	3638	A6	3643	A3	3646	A4	3649	A1	3652	A1	3655	A3	4602	B2	4605	A3	4627	A3	7602	B3		

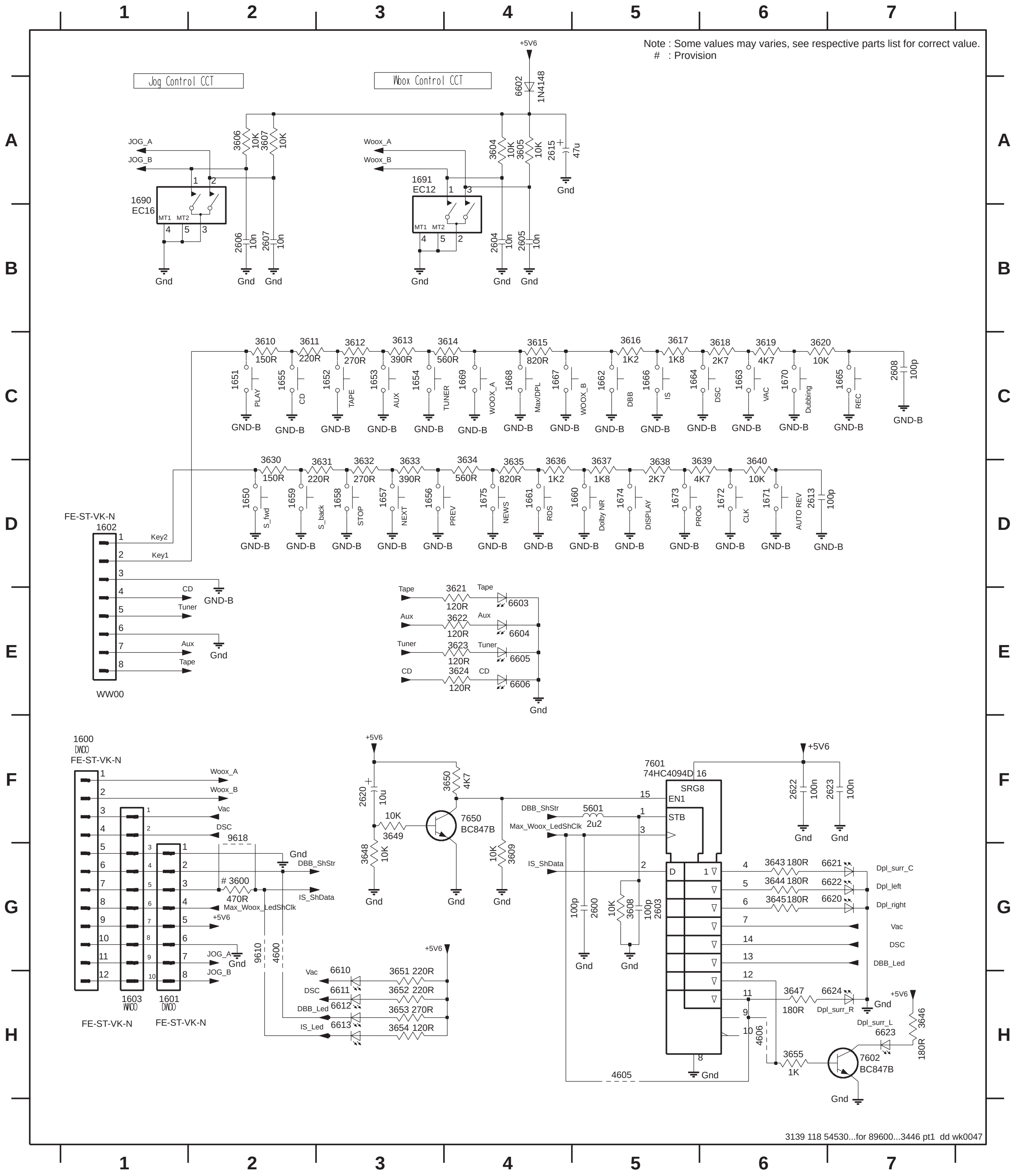

1
2
3
4
5
6
7
A
B
4603
4630
3650
7650
3649
3648
3619
2623
7601
4607
2622
4604
3654
3608
3609
3645
3643
3644
3647
4605
4606
3655
3646
7602
4601
2604
3651
3652
3617
3616
3619
3607
3606
2600
3653
3636
3620
3640
3639
3638
3637
3634
3633
3636
3635
3632
3610
3611
3623
3624
3614
3613
3622
3621
3612
3630
3631

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3446 pt1 dd wk0047

FRONT CONTROL BOARD - CIRCUIT DIAGRAM

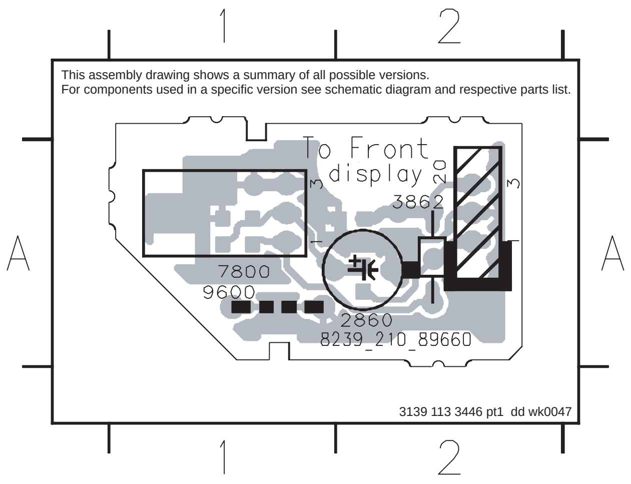
1600 F1
1601 H1
1602 D1
1603 H1
1650 D2
1651 C2
1652 C3
1653 C3
1654 C3
1655 C2
1656 D3
1657 D3
1658 D3
1659 D2
1660 D4
1661 D4
1662 C5
1663 C6
1664 C5
1665 C7
1666 C5
1667 C4
1668 C4
1669 C4
1670 C6
1671 D6
1672 D6
1673 D5
1674 D5
1675 D4
1690 A1
1691 A3
2600 G5
2603 G5
2604 B4
2605 B4
2606 B2
2607 B2
2608 C7
2613 D6
2615 A4
2620 F3
2622 F6
2623 F7
3600 G2
3604 A4
3605 A4
3606 A2
3607 A2
3608 G5
3609 G4
3610 C2
3611 C2
3612 C3
3613 C3
3614 C4
3615 C4
3616 C5
3617 C5
3618 C6
3619 C6
3620 C6
3621 E4
3622 E4
3623 E4
3624 E4
3630 C2
3631 D3
3632 D3
3633 D3
3634 C4
3635 D4
3636 D4
3637 D5
3638 D5
3639 D6
3640 D6
3643 G6
3644 G6
3645 G6
3646 H7
3647 H6
3648 G3
3649 F3
3650 F4
3651 G3
3652 H3
3653 H3
3654 H3
3655 H6
4600 G2
4605 H5
4606 H6
5601 F5
6602 A4
6603 E4
6604 E4
6605 E4
6606 E4
6610 G3
6611 H3
6612 H3
6613 H3
6620 G7
6621 G7
6622 G7
6623 H7
6624 H7
7601 F5
7602 H7
7650 F4
9610 G2
9618 F2



1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
Note : Some values may varies, see respective parts list for correct value.
# : Provision
Jog Control CCT
Woox Control CCT
+5V6
6602
1N4148
JOG_A
JOG_B
1690
EC16
3606
10K
3607
10K
Woox_A
Woox_B
1691
EC12
3604
10K
3605
10K
2615
47u
2606
10n
2607
10n
2604
10n
2605
10n
Gnd
3610
150R
3611
220R
3612
270R
3613
390R
3614
560R
3615
820R
3616
1K2
3617
1K8
3618
2K7
3619
4K7
3620
10K
2608
100p
PLAY
CD
TAPE
AUX
TUNER
WOOX_A
Max/DPL
WOOX_B
DBB
IS
DSC
VAC
Dubbing
REC
GND-B
3630
150R
3631
220R
3632
270R
3633
390R
3634
560R
3635
820R
3636
1K2
3637
1K8
3638
2K7
3639
4K7
3640
10K
2613
100p
S_fwd
S_back
STOP
NEXT
PREV
NEWS
RDS
Dolby NR
DISPLAY
PROG
CLK
AUTO REV
FE-ST-VK-N
1602
Key2
Key1
Tuner
Aux
Tape
WW00
3621
120R
3622
120R
3623
120R
3624
120R
6603
6604
6605
6606
1600
FE-ST-VK-N
1603
1601
9618
# 3600
470R
Max_Woox_LedShClk
IS_ShData
DBB_ShStr
9610
4600
2620
10u
3650
4K7
10K
3649
7650
BC847B
3648
10K
3609
10K
Vac
DSC
DBB_Led
IS_Led
6610
6611
6612
6613
3651 220R
3652 220R
3653 270R
3654 120R
DBB_ShStr
5601
2u2
7601
74HC4094D
SRG8
EN1
STB
2600
100p
3608
10K
2603
100p
2622
100n
2623
100n
3643 180R
3644 180R
3645 180R
6621
6622
6620
Dpl_surr_C
Dpl_left
Dpl_right
3647
180R
6624
Dpl_surr_R
Dpl_surr_L
6623
3646
180R
3655
1K
7602
BC847B
4605
4606
3139 118 54530...for 89660...3446 pt1 dd wk0047

IR-EYE BOARD - COMPONENT LAYOUT

20 A2
2860 A2
3862 A2
7800 A1
9600 A1

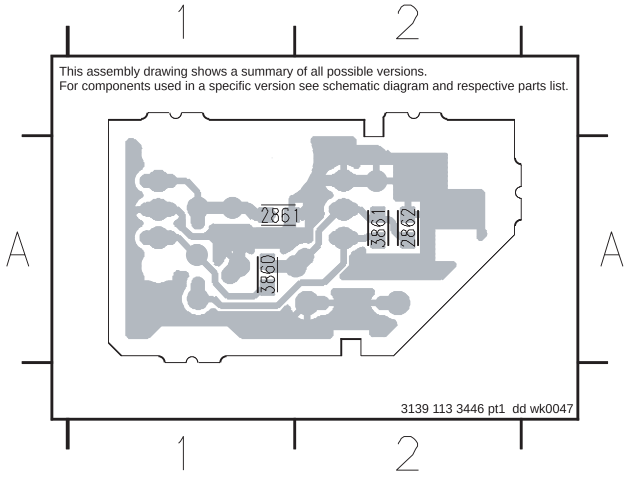


1
2
A
To Front display
20
3
3862
7800
9600
2860
8239_210_89660
3139 113 3446 pt1 dd wk0047

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.

IR-EYE BOARD - CHIP LAYOUT

2861 A1
2862 A2
3860 A1
3861 A2

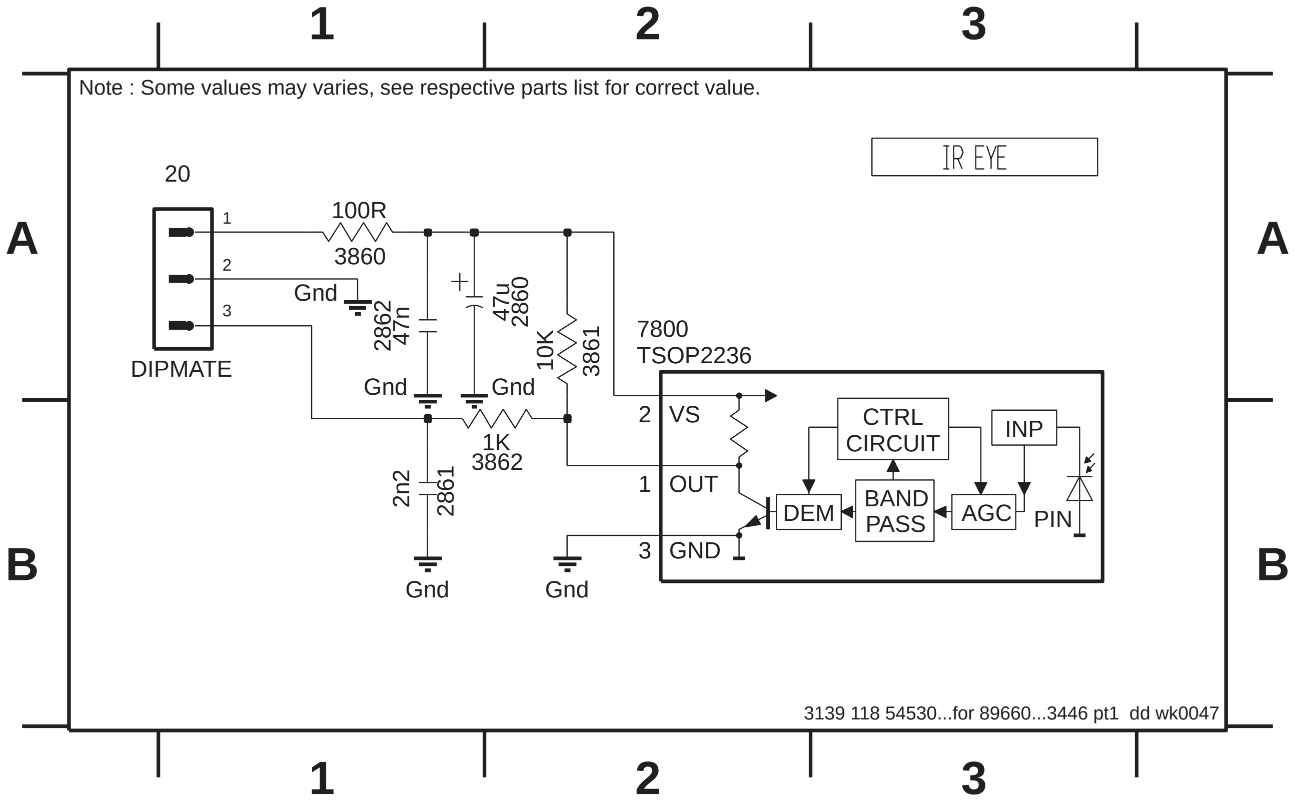


1
2
A
2861
3861
2862
3860
3139 113 3446 pt1 dd wk0047

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.

IR-EYE BOARD - CIRCUIT DIAGRAM

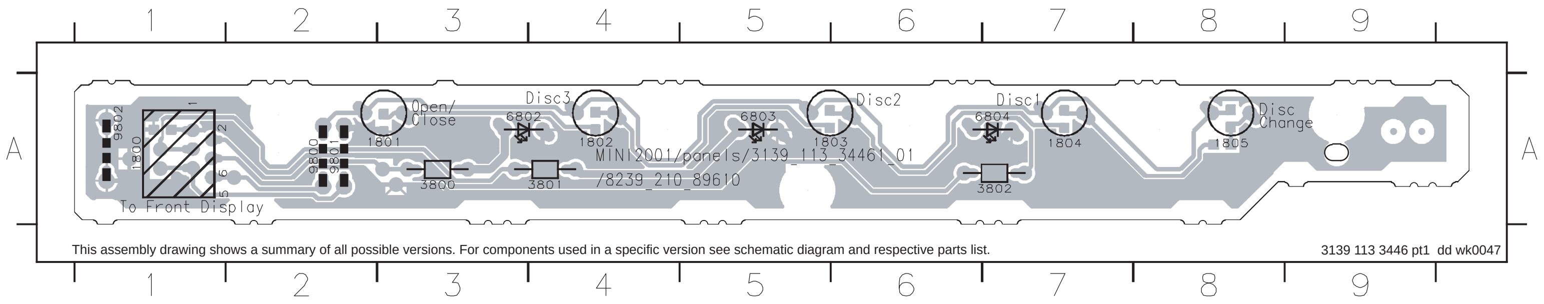
20 A1
2860 A2
2861 B1
2862 A1
3860 A1
3861 A2
3862 B2
7800 A2



1
2
3
A
B
Note : Some values may varies, see respective parts list for correct value.
IR EYE
20
DIPMATE
100R
3860
Gnd
2862
47n
47u
2860
10K
3861
1K
3862
2n2
2861
7800
TSOP2236
VS
OUT
GND
CTRL CIRCUIT
INP
DEM
BAND PASS
AGC
PIN
3139 118 54530...for 89660...3446 pt1 dd wk0047

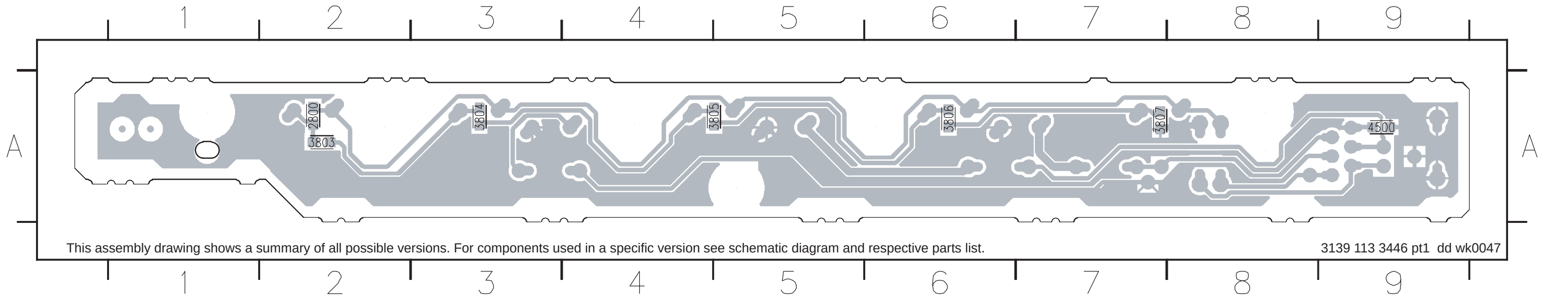
KEY-CDC BOARD - COMPONENT LAYOUT

1800 A1 1801 A3 1802 A4 1803 A5 1804 A7 1805 A8 3800 A3 3801 A4 3802 A7 6802 A3 6803 A5 6804 A7 9800 A2 9801 A2 9802 A1


Open/
Close
Disc3
Disc2
Disc1
Disc
Change
1801
1802
1803
1804
1805
6802
6803
6804
3800
3801
3802
9800
9801
9802
1800
To Front Display
MINI2001/panels/3139_113_34461_01
/8239_210_89610
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.
3139 113 3446 pt1 dd wk0047

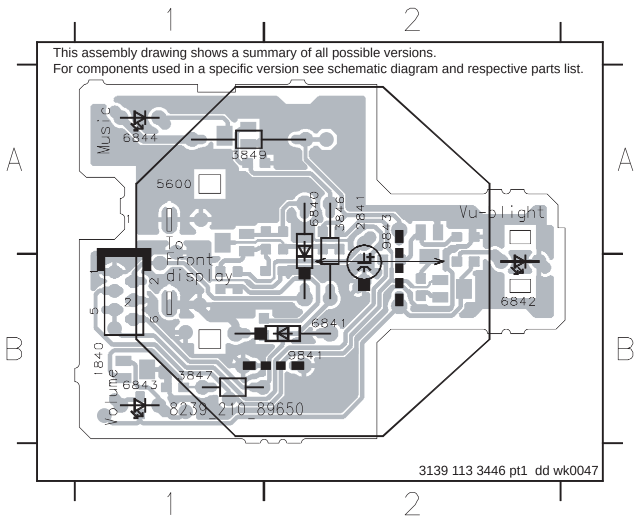
KEY-CDC BOARD - CHIP LAYOUT

2800 A2 3803 A2 3804 A3 3805 A5 3806 A6 3807 A7 4500 A9


2800
3803
3804
3805
3806
3807
4500
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.
3139 113 3446 pt1 dd wk0047

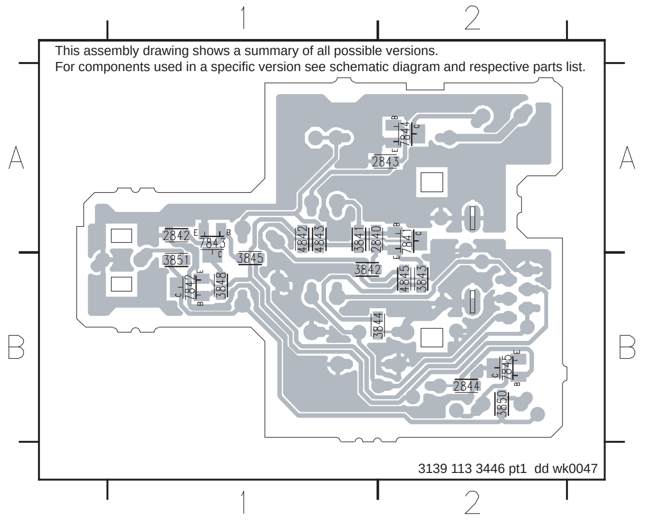
VU METER BOARD - COMPONENT LAYOUT

1840 B1 3846 A2 3849 A1 6840 A2 6842 B2 6844 A1 9843 A2
2841 A2 3847 B1 5600 A1 6841 B2 6843 B1 9841 B2


This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.
Music
6844
3849
5600
Vu-blight
To Front display
6842
6841
9841
1840
3847
Volume
6843
8239_210_89650
3139 113 3446 pt1 dd wk0047

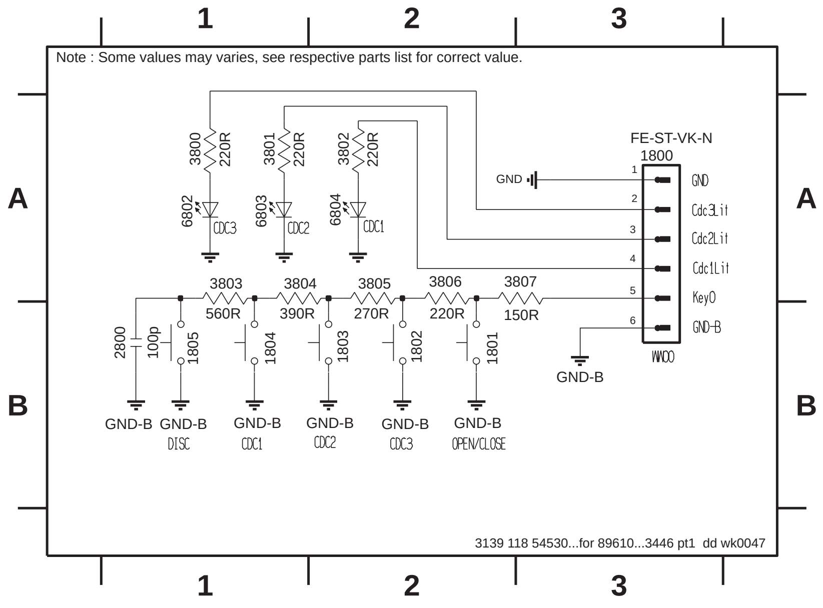
VU METER BOARD - CHIP LAYOUT

2840 A1 2844 B2 3843 B2 3848 B1 4842 A1 7841 A2 7844 A2
2842 A1 3841 A1 3844 B1 3850 B2 4843 A1 7842 B1 7845 B2
2843 A2 3842 B1 3845 B1 3851 B1 4845 B2 7843 A1


This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.
3139 113 3446 pt1 dd wk0047

KEY-CDC BOARD - CIRCUIT DIAGRAM

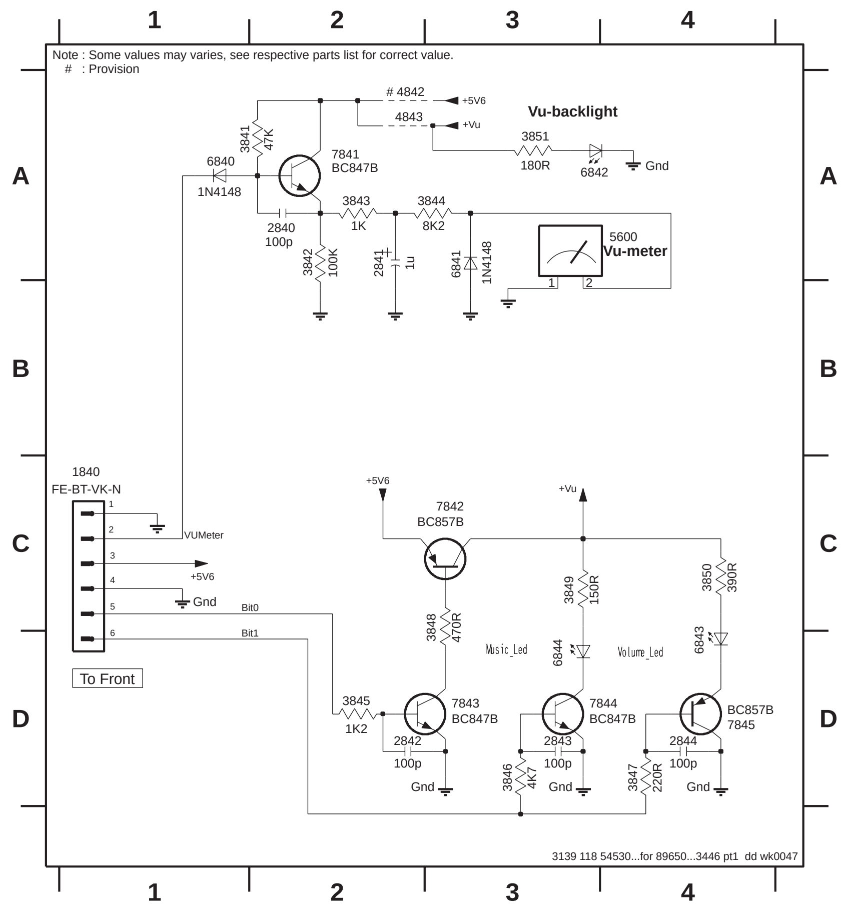
1800 A3 1802 B2 1804 B1 2800 B1 3801 A1 3803 A1 3805 A2 3807 A3 6803 A1
1801 B2 1803 B2 1805 B1 3800 A1 3802 A2 3804 A1 3806 A2 6802 A1 6804 A2


Note : Some values may varies, see respective parts list for correct value.

3800 220R
3801 220R
3802 220R
6802 CDC3
6803 CDC2
6804 CDC1
FE-ST-VK-N
1800
GND
GND
Cdc3Lit
Cdc2Lit
Cdc1Lit
Key0
GND-B
3803 560R
3804 390R
3805 270R
3806 220R
3807 150R
2800 100p
1805
1804
1803
1802
1801
GND-B
DISC
CDC1
CDC2
CDC3
OPEN/CLOSE
3139 118 54530...for 89610...3446 pt1 dd wk0047

VU METER BOARD - CIRCUIT DIAGRAM

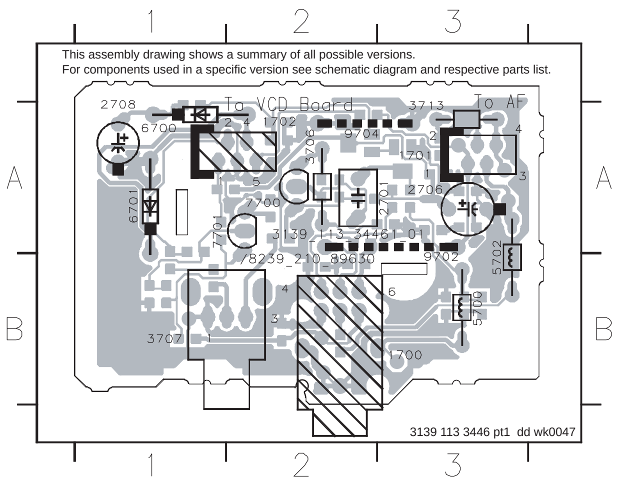
1840 C1 2842 D2 3841 A1 3844 A3 3847 D4 3850 C4 4843 A2 6841 A3 6844 D3 7843 D3
2840 A2 2843 D3 3842 A2 3845 D2 3848 C3 3851 A3 5600 A4 6842 A3 7841 A2 7844 D3
2841 A2 2844 D4 3843 A2 3846 D3 3849 C3 4842 A2 6840 A1 6843 D4 7842 C3 7845 D4


Note : Some values may varies, see respective parts list for correct value.
# : Provision

# 4842
+5V6
4843
+Vu
Vu-backlight
3851 180R
6842
Gnd
3841 47K
7841 BC847B
6840 1N4148
2840 100p
3842 100K
3843 1K
3844 8K2
2841 1u
6841 1N4148
5600
Vu-meter
1840
FE-BT-VK-N
VUMeter
Gnd
Bit0
Bit1
To Front
7842 BC857B
3848 470R
3849 150R
3850 390R
Music_Led
Volume_Led
6844
6843
3845 1K2
7843 BC847B
7844 BC847B
BC857B 7845
2842 100p
2843 100p
2844 100p
3846 4K7
3847 220R
3139 118 54530...for 89650...3446 pt1 dd wk0047

KARAOKE BOARD - COMPONENT LAYOUT

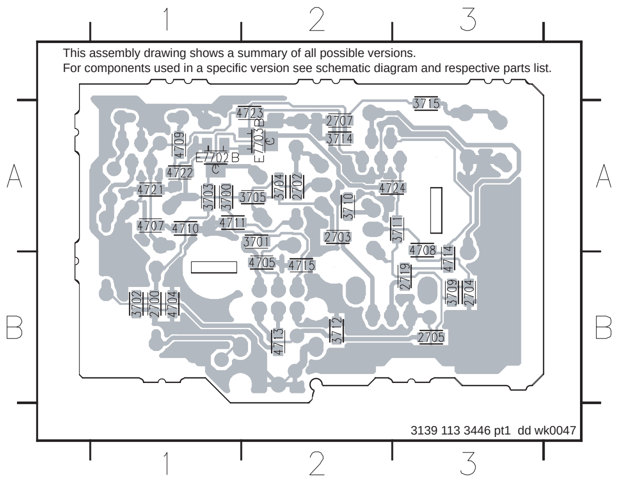
1700 B3 2701 A3 3706 A2 5700 B3 6701 A1 9702 B3
1701 A3 2706 A3 3707 B1 5702 B3 7700 A2 9704 A2
1702 A2 2708 A1 3713 A3 6700 A1 7701 A1


This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.

1
2
3
A
B
To VCD Board
To AF
2708
6700
1702
3713
9704
1701
3706
2706
5
7700
6701
7701
3139_113_34461_01
/8239_210_89630
9702
5702
5700
3707
1700
3139 113 3446 pt1 dd wk0047

KARAOKE BOARD - CHIP LAYOUT

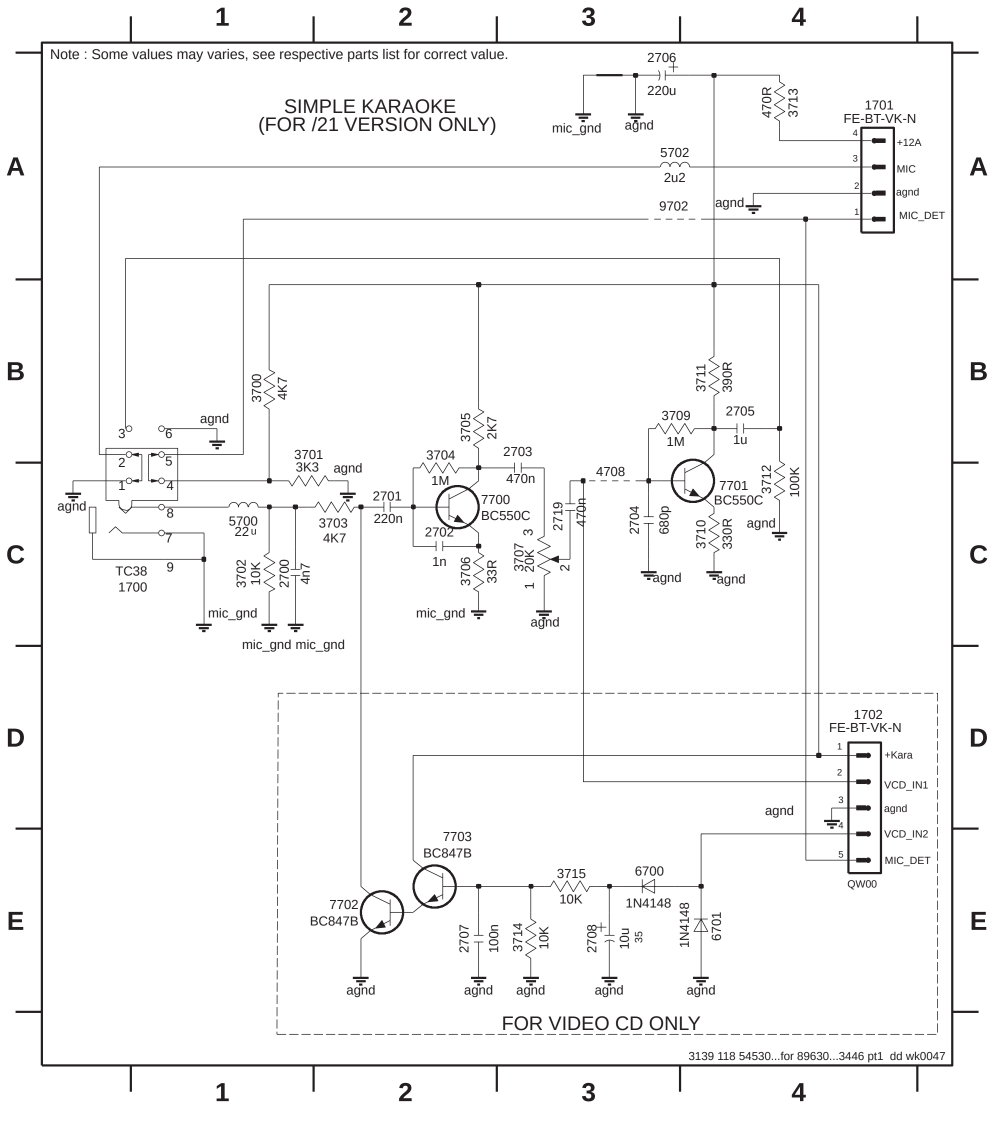
2700 B1 2707 A2 3703 A1 3711 A3 4705 B2 4711 A1 4722 A1
2702 A2 2719 B3 3704 A2 3712 B2 4707 A1 4713 B2 4723 A2
2703 A2 3700 A1 3705 A2 3714 A2 4708 A3 4714 B3 4724 A2
2704 B3 3701 A2 3709 B3 3715 A3 4709 A1 4715 B2 7702 A1
2705 B3 3702 B1 3710 A2 4704 B1 4710 A1 4721 A1 7703 A2


This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.

1
2
3
A
B
3139 113 3446 pt1 dd wk0047

KARAOKE BOARD - CIRCUIT DIAGRAM

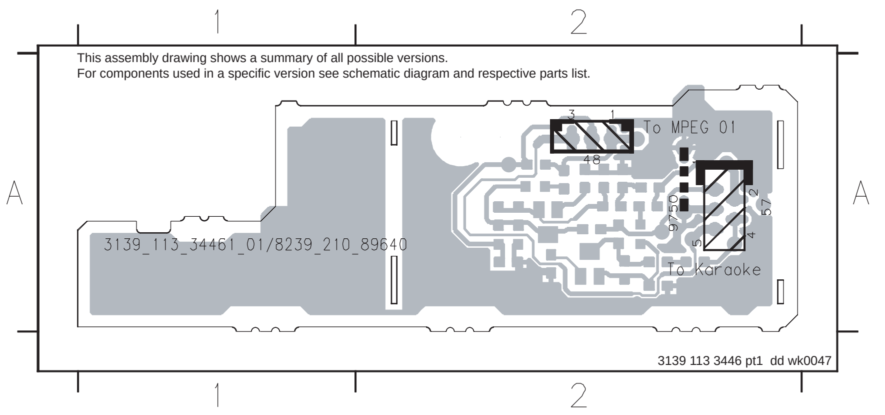
1700 C1 2700 C1 2703 B3 2706 A3 2719 C3 3702 C1 3705 B2 3709 B3 3712 C4 3715 E3 5702 A3 7700 C2 7703 E2
1701 A4 2701 C2 2704 C3 2707 E2 3700 B1 3703 C2 3706 C2 3710 C4 3713 A4 4708 C3 6700 E3 7701 C4 9702 A3
1702 D4 2702 C2 2705 B4 2708 E3 3701 B1 3704 B2 3707 C3 3711 B4 3714 E3 5700 C1 6701 E4 7702 E2


Note : Some values may varies, see respective parts list for correct value.

SIMPLE KARAOKE
(FOR /21 VERSION ONLY)
2706
220u
mic_gnd
agnd
470R
3713
1701
FE-BT-VK-N
+12A
MIC
agnd
MIC_DET
5702
2u2
9702
3700
4K7
3701
3K3
5700
22u
3703
4K7
3702
10K
2700
4n7
TC38
1700
2701
220n
3704
1M
3705
2K7
2703
470n
7700
BC550C
2702
1n
3706
33R
3707
20K
2719
470n
4708
2704
680p
3709
1M
2705
1u
3711
390R
7701
BC550C
3710
330R
3712
100K
1702
FE-BT-VK-N
+Kara
VCD_IN1
agnd
VCD_IN2
MIC_DET
QW00
7703
BC847B
7702
BC847B
3715
10K
6700
1N4148
2707
100n
3714
10K
2708
10u
6701
1N4148
FOR VIDEO CD ONLY
3139 118 54530...for 89630...3446 pt1 dd wk0047

VCD INTERFACE BOARD - COMPONENT LAYOUT

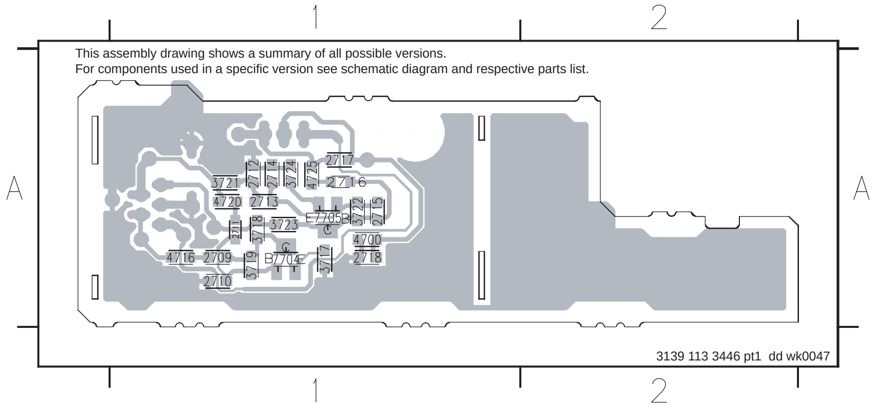
48 A2 57 A2 9750 A2


This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.

1
2
A
To MPEG 01
48
57
To Karaoke
3139_113_34461_01/8239_210_89640
3139 113 3446 pt1 dd wk0047

VCD INTERFACE BOARD - CHIP LAYOUT

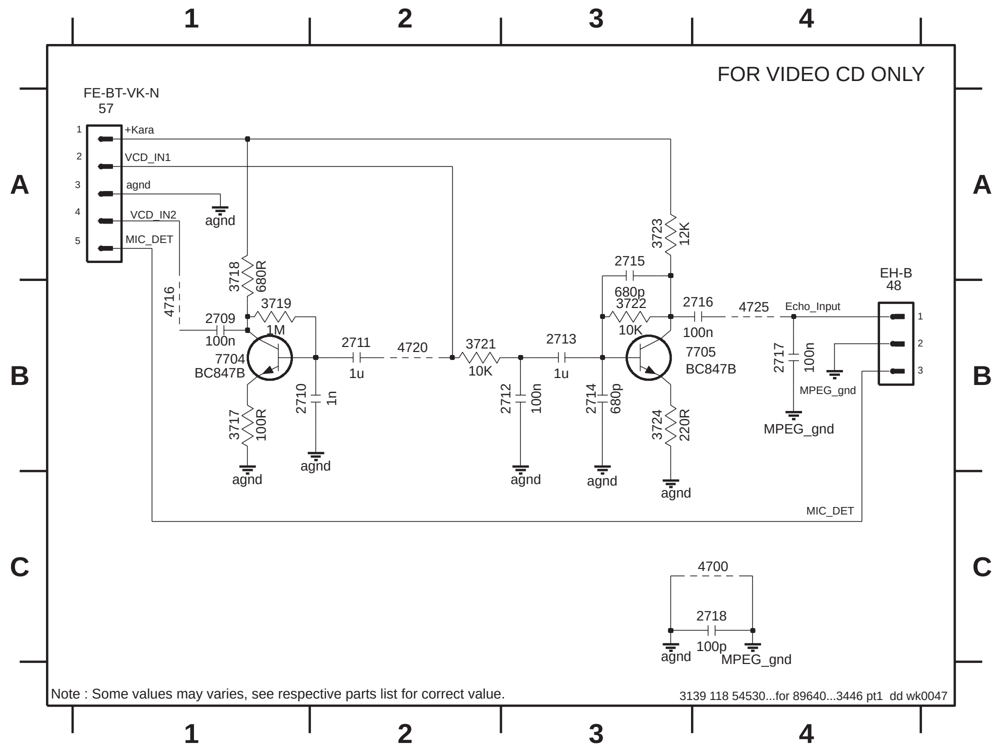
2709 A1 2713 A1 2717 A1 3719 A1 3724 A1 4725 A1
2710 A1 2714 A1 2718 A1 3721 A1 4700 A1 7704 A1
2711 A1 2715 A1 3717 A1 3722 A1 4716 A1 7705 A1
2712 A1 2716 A1 3718 A1 3723 A1 4720 A1


This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.

1
2
A
3139 113 3446 pt1 dd wk0047

VCD INTERFACE BOARD - CIRCUIT DIAGRAM

48 B4 2709 B1 2711 B2 2713 B3 2715 A3 2717 B4 3717 B1 3719 B1 3722 B3 3724 B3 4716 B1 4725 B4 7705 B3
57 A1 2710 B1 2712 B3 2714 B3 2716 B4 2718 C4 3718 A1 3721 B2 3723 A3 4700 C4 4720 B2 7704 B1


Note : Some values may varies, see respective parts list for correct value.

FOR VIDEO CD ONLY
FE-BT-VK-N
57
+Kara
VCD_IN1
agnd
VCD_IN2
MIC_DET
4716
3718
680R
3719
1M
2709
100n
7704
BC847B
3717
100R
2710
1n
2711
1u
4720
3721
10K
2713
1u
2712
100n
2714
680p
2715
680p
3722
10K
3723
12K
7705
BC847B
3724
220R
2716
100n
4725
Echo_Input
2717
100n
EH-B
48
MPEG_gnd
4700
2718
100p
3139 118 54530...for 89640...3446 pt1 dd wk0047

ELECTRICAL PARTS LIST - FRONT CONTROL BOARD

MISCELLANEOUS

1602	4822 265 11535	Flex Connector 8P
1603	4822 265 11208	Flex Connector 10P
1650	4822 276 13775	Tact Switch
1651	4822 276 13775	Tact Switch
1652	4822 276 13775	Tact Switch
1653	4822 276 13775	Tact Switch
1654	4822 276 13775	Tact Switch
1655	4822 276 13775	Tact Switch
1656	4822 276 13775	Tact Switch
1657	4822 276 13775	Tact Switch
1658	4822 276 13775	Tact Switch
1659	4822 276 13775	Tact Switch
1661	4822 276 13775	Tact Switch /22
1663	4822 276 13775	Tact Switch
1664	4822 276 13775	Tact Switch
1665	4822 276 13775	Tact Switch
1666	4822 276 13775	Tact Switch
1667	4822 276 13775	Tact Switch
1669	4822 276 13775	Tact Switch
1670	4822 276 13775	Tact Switch
1671	4822 276 13775	Tact Switch
1672	4822 276 13775	Tact Switch
1673	4822 276 13775	Tact Switch
1674	4822 276 13775	Tact Switch
1675	4822 276 13775	Tact Switch /22
1690	2422 129 16385	Rotary Encoder 12P
1800	4822 265 11207	Flex Connector 6P
1801	4822 276 13775	Tact Switch
1802	4822 276 13775	Tact Switch
1803	4822 276 13775	Tact Switch
1804	4822 276 13775	Tact Switch
1805	4822 276 13775	Tact Switch
1840	4822 267 10731	Flex Connector 6P

CAPACITORS

2606	5322 126 11583	10nF 10% 50V
2607	5322 126 11583	10nF 10% 50V
2608	4822 122 31765	100pF 2% 63V
2613	4822 122 31765	100pF 2% 63V
2615	4822 124 12233	47µF 20% 25V
2622	4822 126 14305	100nF 10% 16V
2623	4822 126 14305	100nF 10% 16V
2800	4822 122 31765	100pF 2% 63V
2840	4822 122 31765	100pF 2% 63V
2841	4822 124 22651	1µF 20% 50V
2842	4822 122 31765	100pF 2% 63V
2843	4822 122 31765	100pF 2% 63V
2844	4822 122 31765	100pF 2% 63V
2860	4822 124 81286	47µF 20% 16V
2861	4822 126 14238	2,2nF 50V
2862	3198 017 34730	47nF 16V

RESISTORS

3606	4822 051 30103	10k 5% 0,062W
3607	4822 051 30103	10k 5% 0,062W
3610	4822 051 30151	150R 5% 0,062W
3611	4822 051 30221	220R 5% 0,062W
3612	4822 051 30271	270R 5% 0,062W
3613	4822 051 30391	390R 5% 0,062W
3614	4822 051 30561	560R 5% 0,062W
3615	4822 117 12968	820R 5% 0,62W
3616	4822 117 11817	1k2 1% 1/16W
3617	4822 117 12903	1k8 1% 0,063W
3618	4822 116 52263	2k7 5% 0,5W
3619	4822 051 30472	4k7 5% 0,062W
3620	4822 051 30103	10k 5% 0,062W
3621	4822 051 30121	120R 5% 0,062W
3622	4822 051 30121	120R 5% 0,062W
3623	4822 051 30121	120R 5% 0,062W
3624	4822 051 30121	120R 5% 0,062W
3630	4822 051 30151	150R 5% 0,062W
3631	4822 051 30221	220R 5% 0,062W
3632	4822 051 30271	270R 5% 0,062W
3633	4822 051 30391	390R 5% 0,062W
3634	4822 051 30561	560R 5% 0,062W
3635	4822 117 12968	820R 5% 0,62W
3636	4822 117 11817	1k2 1% 1/16W
3637	4822 117 12903	1k8 1% 0,063W
3638	4822 051 30272	2k7 5% 0,062W
3639	4822 051 30472	4k7 5% 0,062W
3640	4822 051 30103	10k 5% 0,062W
3646	4822 051 30181	180R 5% 0,062W
3651	4822 051 30221	220R 5% 0,062W
3652	4822 051 30221	220R 5% 0,062W
3653	4822 051 30271	270R 5% 0,062W
3654	4822 051 30121	120R 5% 0,062W
3655	4822 051 30102	1k 5% 0,062W
3800	4822 116 83872	220R 5% 0,5W
3801	4822 116 83872	220R 5% 0,5W
3802	4822 116 83872	220R 5% 0,5W
3803	4822 051 30561	560R 5% 0,062W
3804	4822 051 30391	390R 5% 0,062W
3805	4822 051 30271	270R 5% 0,062W
3806	4822 051 30221	220R 5% 0,062W
3807	4822 051 30151	150R 5% 0,062W
3841	4822 117 12925	47k 1% 0,063W
3842	4822 117 13632	100k 1% 0,62W
3843	4822 051 30102	1k 5% 0,062W
3844	4822 117 12902	8k2 1% 0,063W
3845	4822 117 11817	1k2 1% 1/16W
3846	4822 116 52283	4k7 5% 0,5W
3847	4822 116 83872	220R 5% 0,5W
3848	4822 051 30471	470R 5% 0,062W
3849	4822 116 83868	150R 5% 0,5W
3850	4822 051 30391	390R 5% 0,062W
3851	4822 051 30181	180R 5% 0,062W
3860	4822 051 30101	100R 5% 0,062W
3861	4822 051 30103	10k 5% 0,062W
3862	4822 050 11002	1k 1% 0,4W
4500	4822 051 30008	0R Jumper 0603
4600	4822 051 30008	0R Jumper 0603
4601	4822 051 30008	0R Jumper 0603
4602	4822 051 30008	0R Jumper 0603
4603	4822 051 30008	0R Jumper 0603
4604	4822 051 30008	0R Jumper 0603
4605	4822 051 30008	0R Jumper 0603
4606	4822 051 30008	0R Jumper 0603
4607	4822 051 30008	0R Jumper 0603
4627	4822 051 30008	0R Jumper 0603
4628	4822 051 30008	0R Jumper 0603
4843	4822 051 30008	0R Jumper 0603
4845	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5600	3139 110 52720	METER VU P-47SI-B BLUE

DIODES

6602	4822 130 30621	1N4148
6603	4822 130 10791	LTL-1CHGE
6604	4822 130 10791	LTL-1CHGE
6605	4822 130 10791	LTL-1CHGE
6606	4822 130 10791	LTL-1CHGE
6610	4822 130 10791	LTL-1CHGE
6611	4822 130 10791	LTL-1CHGE
6612	4822 130 82978	LTL-1CHPE
6613	4822 130 10791	LTL-1CHGE
6623	9322 153 37676	LB3333RT-E7898
6802	4822 130 10791	LTL-1CHGE
6803	4822 130 10791	LTL-1CHGE
6804	4822 130 10791	LTL-1CHGE
6840	4822 130 30621	1N4148
6841	4822 130 30621	1N4148
6842	9322 153 37676	LB3333RT-E7898
6843	4822 130 82978	LTL-1CHPE
6844	4822 130 11589	LTL-1CHAE

TRANSISTORS & INTEGRATED CIRCUITS

7602	5322 130 60159	BC847B
7800	9322 155 22667	TSOP2236ZC1
7841	5322 130 60159	BC847B
7842	4822 130 60373	BC857B
7843	5322 130 60159	BC847B
7844	5322 130 60159	BC847B
7845	4822 130 60373	BC857B

Note : Only the parts mentioned in this list are normal service spare parts.

FRONT DISPLAY BOARD

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Front Display Board - Component layout 6-3
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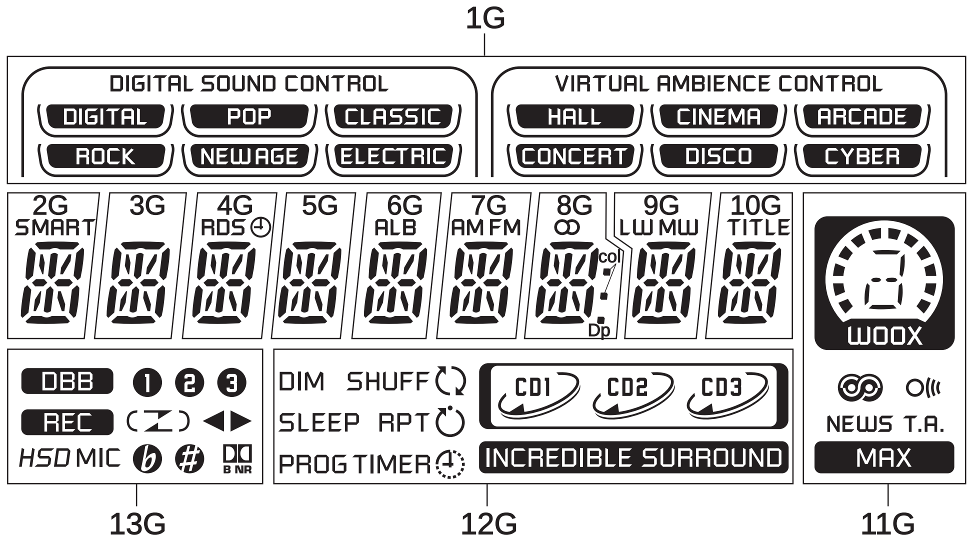
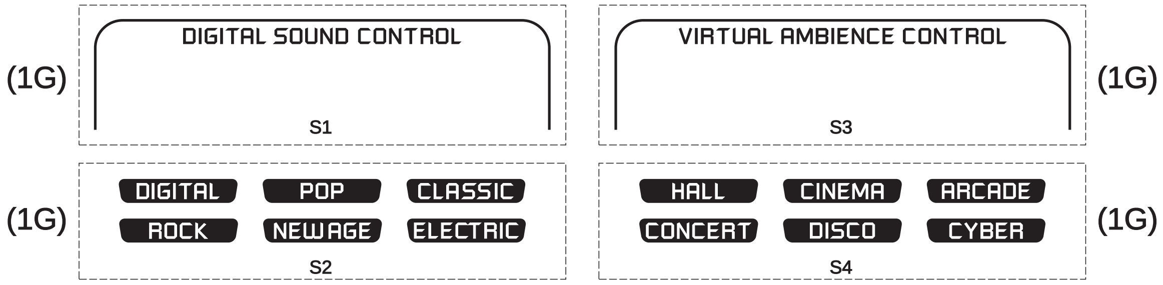
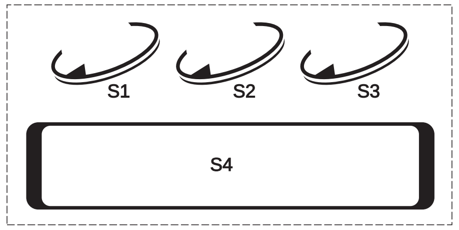
FTD DISPLAY PIN CONNECTIONS



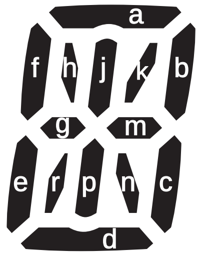
1G
DIGITAL SOUND CONTROL
DIGITAL
POP
CLASSIC
ROCK
NEWAGE
ELECTRIC
VIRTUAL AMBIENCE CONTROL
HALL
CINEMA
ARCADE
CONCERT
DISCO
CYBER
2G
SMART
3G
4G
RDS
5G
6G
ALB
7G
AM FM
8G
col
Dp
9G
LW MW
10G
TITLE
WOOX
DBB
REC
HSD MIC
B NR
DIM
SHUFF
SLEEP
RPT
PROG TIMER
CD1
CD2
CD3
INCREDIBLE SURROUND
NEWS T.A.
MAX
13G
12G
11G



(1G)
DIGITAL SOUND CONTROL
S1
VIRTUAL AMBIENCE CONTROL
S3
(1G)
(1G)
DIGITAL
POP
CLASSIC
ROCK
NEWAGE
ELECTRIC
S2
HALL
CINEMA
ARCADE
CONCERT
DISCO
CYBER
S4
(1G)

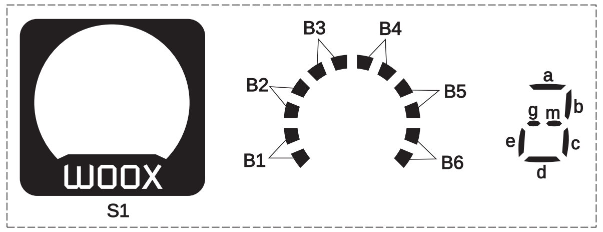


(12G)



a
f
h
j
k
b
g
m
e
r
p
n
c
d

(2G-10G)



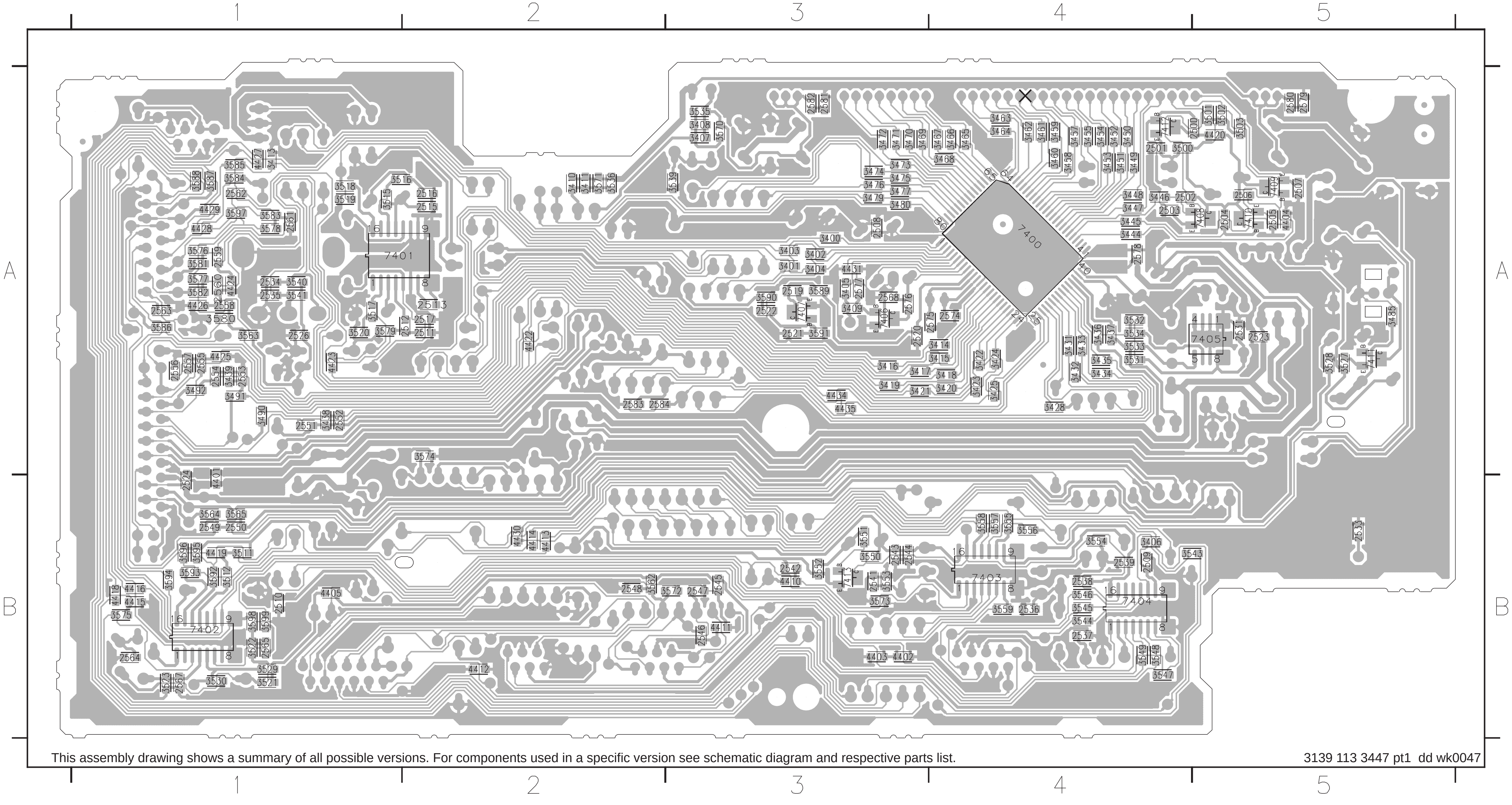
WOOX
S1
B3
B4
B2
B5
B1
B6
a
g
m
b
e
c
d

(11G)

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G
P1	S1	a	a	a	a	a	a	a	a	a	S1	DIM	DBB
P2	S2	h	h	h	h	h	h	h	h	h	B1	SHUFF	❶
P3	(CLASSIC)	j , p	j , p	j , p	j , p	j , p	j , p	j , p	j , p	j , p	B2	SLEEP	❷
P4	(POP)	k	k	k	k	k	k	k	k	k	B3	RPT	❸
P5	(DIGITAL)	b	b	b	b	b	b	b	b	b	B4	PROG	REC
P6	(ELECTRIC)	f	f	f	f	f	f	f	f	f	B5	TIMER	(
P7	(NEWAGE)	m	m	m	m	m	m	m	m	m	B6	CD1	⌶
P8	(ROCK)	g	g	g	g	g	g	g	g	g	a,g,m,d	S1	)
P9	S3	c	c	c	c	c	c	c	c	c	b	CD2	◀
P10	S4	e	e	e	e	e	e	e	e	e	c	S2	▶
P11	(ARCADE)	r	r	r	r	r	r	r	r	r	e	CD3	*HSD*
P12	(CINEMA)	n	n	n	n	n	n	n	n	n	∞	S3	MIC
P13	(HALL)	d	d	d	d	d	d	d	d	d	O((	S4	♭
P14	(CYBER)	SMART	-	RDS	-	ALB	AM	∞	LW	TITLE	NEWS	INCREDIBLE SURROUND	#
P15	(DISCO)	-	-	-	-	-	FM	col	MW	-	T.A.	-	DD B NR
P16	(CONCERT)	-	-	-	-	-	-	Dp	-	-	MAX	-	-

FRONT DISPLAY BOARD - CHIP LAYOUT

2500	A5	2512	A2	2531	A5	2545	B3	2557	A1	2575	A4	3402	A3	3415	A4	3431	A4	3447	A4	3460	A4	3472	A3	3500	A4	3521	B1	3536	A2	3551	B3	3565	B1	3581	A1	3593	B1	4410	B3	4424	A1	7402	B1
2501	A4	2513	A2	2533	B5	2546	B3	2558	A1	2576	A3	3403	A3	3416	A3	3432	A4	3448	A4	3461	A4	3473	A3	3501	A5	3522	B1	3539	A3	3552	B3	3570	A3	3582	A1	3594	B1	4411	B3	4425	A1	7403	B4
2502	A4	2515	A2	2534	A1	2547	B3	2559	A1	2577	A3	3404	A3	3417	A3	3433	A4	3449	A4	3462	A4	3474	A3	3502	A5	3523	B1	3540	A1	3553	B3	3571	A2	3583	A1	3595	B1	4412	B2	4426	A1	7404	B4
2503	A4	2516	A2	2535	A1	2548	B2	2560	A1	2578	A4	3405	A3	3418	A4	3434	A4	3450	A4	3463	A4	3475	A3	3503	A5	3527	A5	3541	A1	3554	B4	3572	B3	3584	A1	3596	B1	4413	B2	4427	A1	7405	A5
2504	A5	2517	A2	2536	B4	2549	B1	2561	A1	2579	A5	3406	B4	3419	A3	3435	A4	3451	A4	3464	A4	3476	A3	3511	B1	3528	A5	3543	B4	3555	B4	3573	B3	3585	A1	3597	A1	4414	B2	4428	A1	7406	A3
2505	A5	2519	A3	2537	B4	2550	B1	2562	A1	2580	A5	3407	A3	3420	A4	3436	A4	3452	A4	3465	A4	3477	A3	3512	B1	3529	B1	3544	B4	3556	B4	3574	A2	3586	A1	3598	B1	4415	B1	4429	A1	7407	A3
2506	A5	2520	A3	2538	B4	2551	A1	2563	A1	2581	A3	3408	A3	3421	A3	3437	A4	3453	A4	3466	A4	3479	A3	3515	A1	3530	B1	3545	B4	3557	B4	3575	B1	3587	A1	3599	B1	4416	B1	4430	B2	7408	A5
2507	A5	2521	A3	2539	B4	2552	A1	2564	B1	2582	A3	3409	A3	3422	A4	3438	A1	3454	A4	3467	A4	3480	A3	3516	A1	3531	A4	3546	B4	3558	B4	3576	A1	3588	A1	4401	B1	4418	B1	4431	A3	7409	A5
2508	A3	2522	A3	2541	B3	2553	A1	2565	B1	2583	A2	3410	A2	3423	A4	3439	A1	3455	A4	3468	A4	3485	A5	3517	A1	3532	A4	3547	B4	3559	B4	3577	A1	3589	A3	4402	B3	4419	B1	4434	A3	7410	A5
2509	B4	2523	A5	2542	B3	2554	A1	2567	B1	2584	A2	3411	A2	3424	A4	3444	A4	3457	A4	3469	A3	3490	A1	3518	A1	3533	A4	3548	B4	3562	B2	3578	A1	3590	A3	4403	B3	4420	A5	4435	A3	7411	A5
2510	B1	2524	B1	2543	B3	2555	A1	2568	A3	3400	A3	3413	A1	3425	A4	3445	A4	3458	A4	3470	A3	3491	A1	3519	A1	3534	A4	3549	B4	3563	A1	3579	A1	3591	A3	4404	A5	4422	A2	7400	A4	7412	A4
2511	A2	2526	A1	2544	B3	2556	A1	2574	A4	3401	A3	3414	A4	3428	A4	3446	A4	3459	A4	3471	A3	3492	A1	3520	A1	3535	A3	3550	B3	3564	B1	3580	A1	3592	B1	4405	B1	4423	A1	7401	A1	7413	B3



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3447 pt1 dd wk0047

FRONT DISPLAY BOARD - COMPONENT LAYOUT

1400	A5
1402	B2
1403	B5
1404	B5
1405	A5
1406	A5
1407	B4
1408	A5
1409	B4
1411	A5
1412	B5
1420	A3
1520	A1
1521	A1
1533	B1
1550	A5
2514	A5
2518	A1
2525	B5
2527	A3
2528	A3
2529	A1
2530	A1
2566	B5
2569	B3
2570	A2
2571	A2
2572	A3
2573	A3
3429	A2
3430	A2
3456	A2
3504	B4
3505	A3
3526	B5
3537	A3
3538	A3
3542	B2
3560	B3
3561	B3
5400	A1
5401	A1
5402	A3
5403	A2
5404	A5
5405	A5
5406	A5
5407	B3
6400	A3
6401	A3
6402	A3
6403	A3
6404	A3
6405	A3
6406	A3
6407	A3
6408	A1
6409	A1
6410	A1
6411	A5
6412	A1
6413	A2
6414	B5
6420	A1
9400	B2
9401	A5
9402	B2
9405	B4
9410	A1
9411	A1
9412	A2
9413	A1
9414	A1
9415	A1
9416	A1
9417	A1
9418	A1
9419	A1
9420	A2
9421	A2
9422	A2
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9425	B2
9426	B2
9427	B2
9428	B2
9429	B2
9430	B2
9431	B2
9432	B2
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9435	B3
9436	B3
9437	B3
9438	B3
9439	B3
9440	B3
9441	B3
9442	B3
9443	B3
9444	A3
9445	A3
9448	A4
9449	A4
9450	A4
9451	A4
9452	A4
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9456	A4
9457	A4
9458	A4
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9460	A4
9461	A4
9462	A3
9463	A3
9464	A3
9465	A3
9466	A4
9467	A4
9468	A4
9469	A4
9470	B4
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9472	B4
9473	A4
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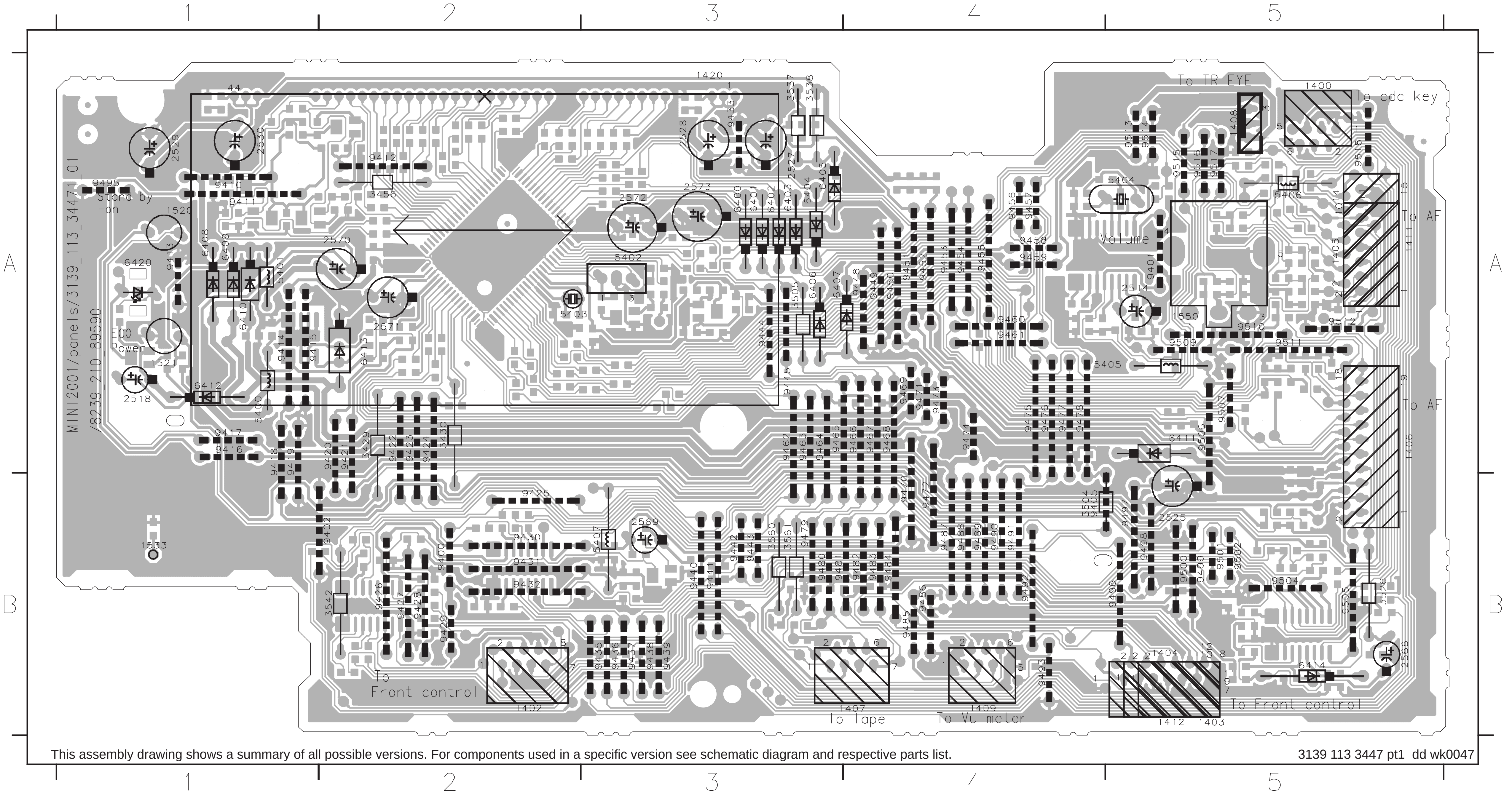
9475	A4
9476	A4
9477	A4
9478	A4
9479	B3
9480	B3
9481	B3
9482	B4
9483	B4
9484	B4
9485	B4
9486	B4
9487	B4
9488	B4
9489	B4
9490	B4
9491	B4
9492	B4
9493	B4
9495	A1
9496	B5
9497	B5
9498	B5
9499	B5
9500	B5
9501	B5
9502	B5
9504	B5
9505	B5
9506	A5
9507	A5
9509	A5
9510	A5
9511	A5
9512	A5
9513	A5
9514	A5
9515	A5
9516	A5
9517	A5
9518	A5

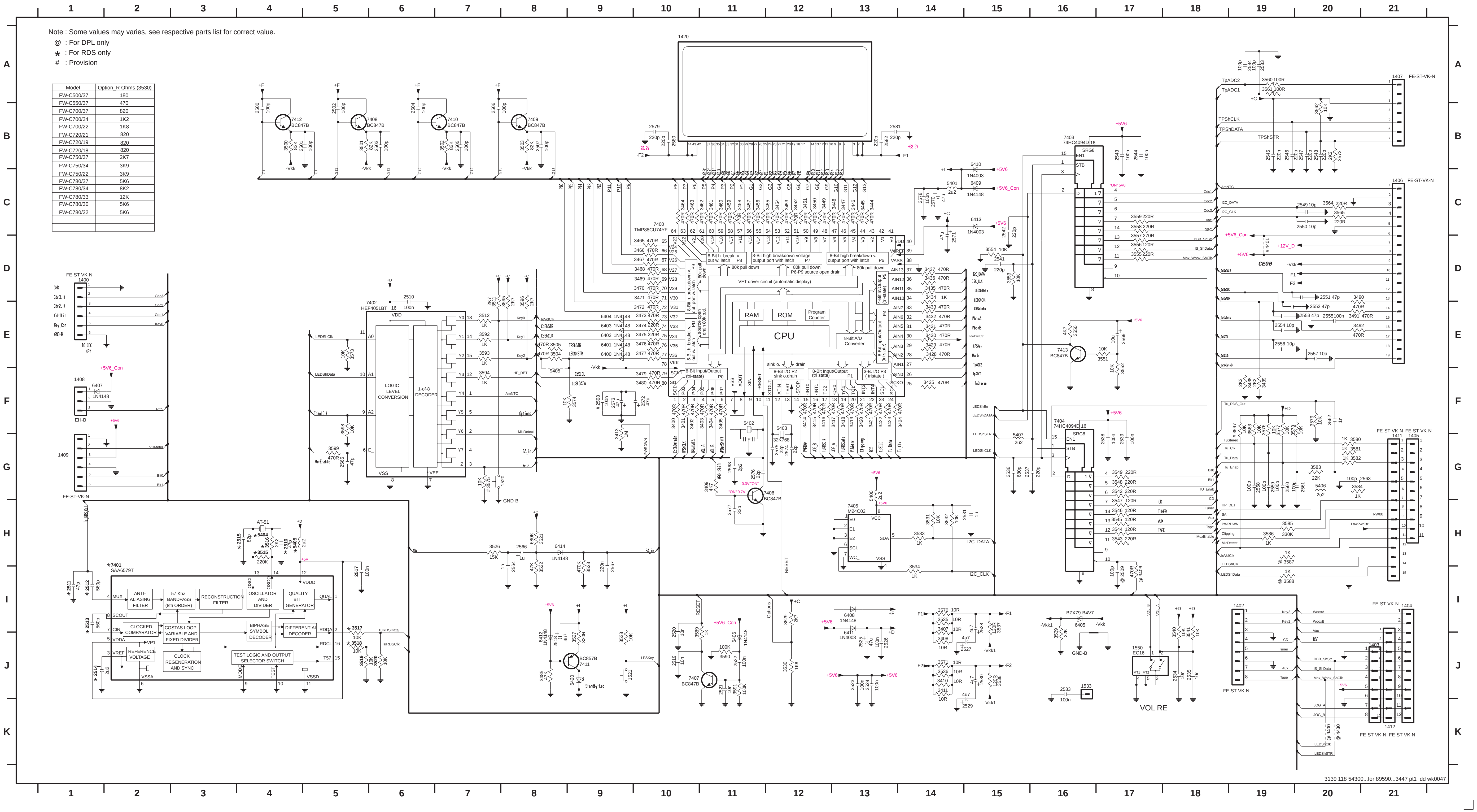

1
2
3
4
5
A
B
MINI2001/panels/3139_113_34471_01
/8239_210_89590
Stand by
-on
ECO
Power
1420
To TR EYE
1400
To cdc-key
To AF
Volume
To AF
To Front control
To Tape
To Vu meter
To Front control
1402
1407
1409
1412
1403
1404

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3447 pt1 dd wk0047

FRONT DISPLAY BOARD - CIRCUIT DIAGRAM

1400	D1
1402	I19
1403	J21
1404	I21
1405	G21
1406	C21
1407	A21
1408	F1
1409	G1
1411	G21
1412	K21
1420	A10
1520	G8
1521	J9
1533	J16
1550	J17
2500	B4
2501	B5
2502	B5
2503	B6
2504	B6
2505	B7
2506	B7
2507	B8
2508	F9
2509	I17
2510	D6
2511	I1
2512	I1
2513	I1
2514	J1
2515	H4
2516	H4
2517	I5
2518	J8
2519	J10
2520	J10
2521	J11
2522	J11
2523	J13
2524	J13
2525	J13
2526	J13
2527	J15
2528	I15
2529	K15
2530	J15
2531	H15
2533	J16
2534	J18
2535	J18
2536	G15
2537	G15
2538	G17
2539	G17
2541	D15
2542	C15
2543	B17
2544	B17
2545	B19
2546	B19
2547	B20
2548	B20
2549	C20
2550	C20
2551	D20
2552	E20
2553	E20
2554	E19
2555	E20
2556	E19
2557	E20
2558	G19
2559	G19
2560	G19
2561	G20
2562	F20
2563	G21
2564	I8
2565	G5
2566	H8
2567	I9
2568	G11
2569	E17
2570	C14
2571	D14
2572	F10
2573	F9
2574	G12
2575	G12
2576	G11
2577	H11
2578	C14
2579	B10
2580	B10
2581	B13
2582	B13
2583	A19
2584	A19
3400	F10
3401	F10
3402	F10
3403	F11
3404	F11
3405	F11
3406	I17
3407	I14
3408	J14
3409	G11
3410	J14
3411	J14
3413	G9
3414	F12
3415	F12
3416	F12
3417	F13
3418	F13
3419	F13
3420	F13
3421	F13
3422	F13
3423	F13
3424	F13
3425	F14
3428	E14
3429	E14
3430	E14
3431	E14
3432	E14
3433	E14
3434	D14
3435	D14
3436	D14
3437	D14
3438	F19
3439	F19
3444	C13
3445	C13
3446	C13
3447	C13
3448	C13
3449	C12
3450	C12
3451	C12
3452	C12
3453	C12
3454	C12
3455	C12
3456	C11
3457	C11
3458	C11
3459	C11
3460	C11
3461	C11
3462	C11
3463	C10
3464	C10
3465	D10
3466	D10
3467	D10
3468	D10
3469	D10
3470	D10
3471	D10
3472	E10
3473	E10
3474	E10
3475	E10
3476	E10
3477	E10
3479	F10
3480	F10
3485	J8
3490	D20
3491	E20
3492	E20
3500	B4
3501	B5
3502	B7
3503	B8
3504	E8
3505	E8
3511	E7
3512	E7
3515	H4
3516	H4
3517	I5
3518	J5
3519	J5
3520	J6
3521	H8
3522	I8
3523	I9
3526	H7
3527	J9
3528	J9
3529	I12
3530	J12
3531	H14
3532	H14
3533	H14
3534	I14
3535	I14
3536	J14
3537	I15
3538	J15
3539	J16
3540	J18
3541	J18
3542	G17
3543	H17
3544	H17
3545	H17
3546	H17
3547	G17
3548	G17
3549	G17
3550	E16
3551	E17
3552	F17
3553	D15
3554	D15
3555	D17
3556	D17
3557	D17
3558	C17
3559	C17
3560	A19
3561	A19
3562	B20
3563	F19
3564	C20
3565	C20
3570	I14
3571	J14
3572	B20
3573	E5
3574	F9
3575	G7
3576	F19
3577	F19
3578	F19
3579	F20
3580	G20
3581	G20
3582	G20
3583	G20
3584	G20
3585	H19
3586	H19
3587	H19
3588	I19
3589	J10
3590	J11
3591	J11
3592	E7
3593	E7
3594	F7
3595	E8
3596	E8
3597	F19
3598	F5
3599	G5
4401	D19
4430	K20
5400	G13
5401	C14
5402	F11
5403	F12
5404	H4
5405	H4
5406	G20
5407	G15
6400	E9
6401	E9
6402	E9
6403	E9
6404	E9
6405	I16
6406	J11
6407	F1
6408	I13
6409	C15
6410	B15
6411	I13
6412	J8
6413	C15
6414	H8
6420	J9
7400	C10
7401	I2
7402	E5
7403	B16
7404	F16
7405	H13
7406	G11
7407	J10
7408	B5
7409	B8
7410	B7
7411	J9
7412	B4
7413	E16
9400	K20
9405	F8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12
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14
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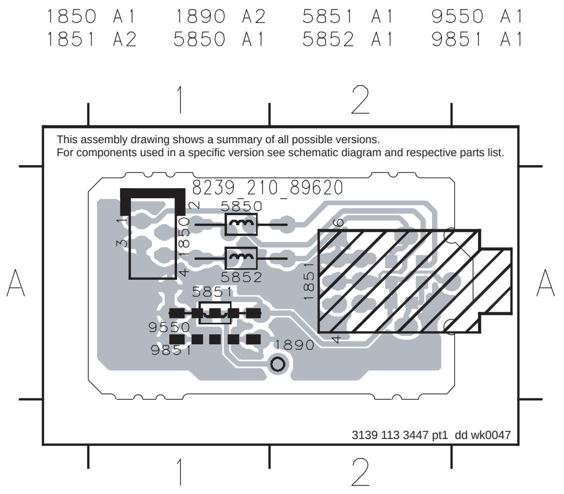
16
17
18
19
20
21
A
B
C
D
E
F
G
H
I
J
K
1420
7400
TMP88CU74YF
CPU
RAM
ROM
Program Counter
8-Bit A/D Converter
VFT driver circuit (automatic display)
8-Bit high breakdown voltage output port with latch P7
8-Bit high breakdown v. output port with latch P6
8-Bit h. break. v. out w. latch P8
80k pull down
8-Bit Input/Output (tri-state) P0
8-Bit I/O P2 sink o.drain
8-Bit Input/Output (tri state) P1
3-Bit I/O P3 (tristate)
7402
HEF4051BT
LOGIC LEVEL CONVERSION
1-of-8 DECODER
7401
SAA6579T
ANTI-ALIASING FILTER
57 Khz BANDPASS (8th ORDER)
RECONSTRUCTION FILTER
OSCILLATOR AND DIVIDER
QUALITY BIT GENERATOR
CLOCKED COMPARATOR
COSTAS LOOP VARIABLE AND FIXED DIVIDER
BIPHASE SYMBOL DECODER
DIFFERENTIAL DECODER
REFERENCE VOLTAGE
CLOCK REGENERATION AND SYNC
TEST LOGIC AND OUTPUT SELECTOR SWITCH
AT-51
7403
74HC4094D
7404
74HC4094D
7405
M24C02
7406
BC847B
7407
BC847B
7408
BC847B
7409
BC847B
7410
BC847B
7411
BC857B
7412
BC847B
7413
BC847B
1550
EC16
VOL RE
BZX79-B4V7
FE-ST-VK-N
EH-B
TO CDC KEY
StandBy-Led
3139 118 54300...for 89590...3447 pt1 dd wk0047

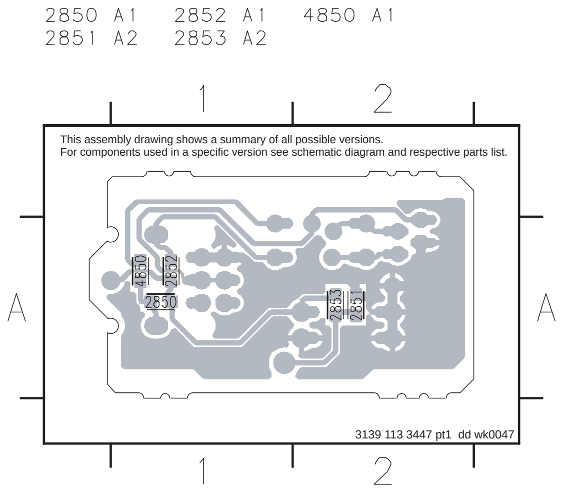
Note : Some values may varies, see respective parts list for correct value.
@ : For DPL only
* : For RDS only
# : Provision

Model	Option_R Ohms (3530)
FW-C500/37	180
FW-C550/37	470
FW-C700/37	820
FW-C700/34	1K2
FW-C700/22	1K8
FW-C720/21	820
FW-C720/19	820
FW-C720/18	820
FW-C750/37	2K7
FW-C750/34	3K9
FW-C750/22	3K9
FW-C780/37	5K6
FW-C780/34	8K2
FW-C780/33	12K
FW-C780/30	5K6
FW-C780/22	5K6

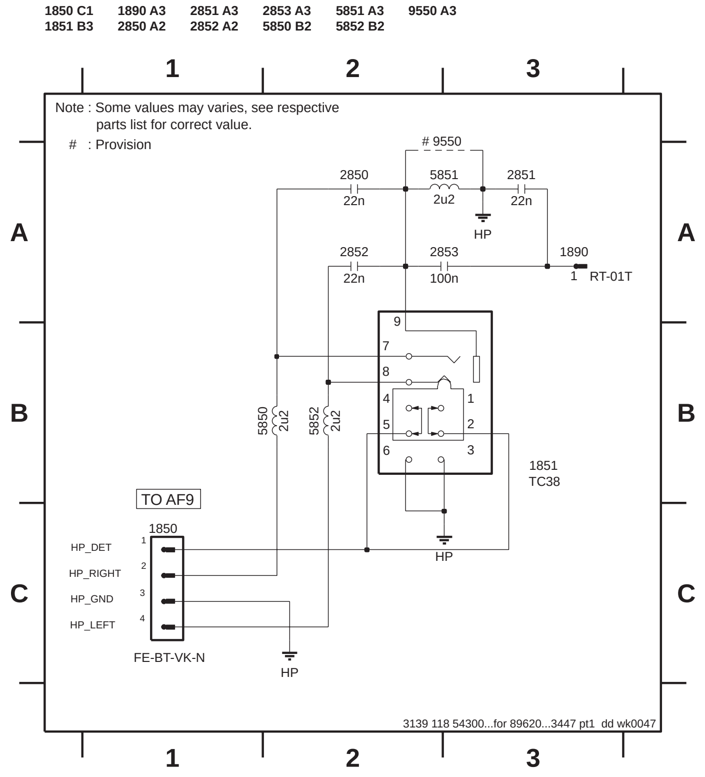
HEADPHONE BOARD - COMPONENT LAYOUT


1850 A1
1851 A2
1890 A2
5850 A1
5851 A1
5852 A1
9550 A1
9851 A1
1
2
A
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.
8239 210 89620
5850
5852
5851
9550
9851
1850
1851
1890
3139 113 3447 pt1 dd wk0047

HEADPHONE BOARD - CHIP LAYOUT


2850 A1
2851 A2
2852 A1
2853 A2
4850 A1
1
2
A
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram and respective parts list.
4850
2852
2850
2853
2851
3139 113 3447 pt1 dd wk0047

HEADPHONE BOARD - CIRCUIT DIAGRAM


1850 C1
1851 B3
1890 A3
2850 A2
2851 A3
2852 A2
2853 A3
5850 B2
5851 A3
5852 B2
9550 A3
1
2
3
A
B
C
Note : Some values may varies, see respective parts list for correct value.
# : Provision
# 9550
2850
22n
5851
2u2
2851
22n
HP
2852
22n
2853
100n
1890
1
RT-01T
9
7
8
4
5
6
1
2
3
1851
TC38
5850
2u2
5852
2u2
TO AF9
1850
HP_DET
HP_RIGHT
HP_GND
HP_LEFT
FE-BT-VK-N
HP
3139 118 54300...for 89620...3447 pt1 dd wk0047

ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

MISCELLANEOUS

1400	4822 265 11207	Flex Connector 6P
1402	4822 265 11535	Flex Connector 8P
1405	2422 025 14541	Flex Connector 11P
1406	4822 265 11545	Flex Connector 19P
1407	4822 267 10956	Flex Connector 7P
1409	4822 265 11207	Flex Connector 6P
1412	4822 265 11208	Flex Connector 10P
1420	3139 110 52550	FTD Display
1520	4822 276 13775	Tact Switch
1521	4822 276 13775	Tact Switch
1550	4822 273 10365	Rotary Encoder 24P
1850	4822 267 10733	Flex Connector 4P
1851	4822 265 11529	Headphone Socket

CAPACITORS

2500	4822 122 31765	100pF 2% 63V
2501	4822 122 31765	100pF 2% 63V
2502	4822 122 31765	100pF 2% 63V
2503	4822 122 31765	100pF 2% 63V
2504	4822 122 31765	100pF 2% 63V
2505	4822 122 31765	100pF 2% 63V
2506	4822 122 31765	100pF 2% 63V
2507	4822 122 31765	100pF 2% 63V
2510	4822 126 14305	100nF 10% 16V

ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

2511	4822 122 33777	47pF 5% 63V
2512	4822 126 14249	560pF 10% 50V
2513	4822 126 14249	560pF 10% 50V
2514	4822 124 22652	2,2µF 20% 50V
2515	4822 126 14226	82pF 5% 50V
2516	4822 122 33777	47pF 5% 63V
2517	4822 126 14305	100nF 10% 16V
2518	4822 124 22726	4,7µF 35V
2519	5322 126 11583	10nF 10% 50V
2520	5322 126 11583	10nF 10% 50V
2521	5322 126 11583	10nF 10% 50V
2522	4822 126 14305	100nF 10% 16V
2523	4822 126 14305	100nF 10% 16V
2524	4822 126 14305	100nF 10% 16V
2525	4822 124 12233	47µF 20% 25V
2526	4822 126 14305	100nF 10% 16V
2527	4822 124 22726	4,7µF 35V
2528	4822 124 22726	4,7µF 35V
2529	4822 124 22726	4,7µF 35V
2530	4822 124 22726	4,7µF 35V
2531	3198 017 41050	1µF 10V
2533	4822 126 14305	100nF 10% 16V
2534	5322 126 11583	10nF 10% 50V
2535	5322 126 11583	10nF 10% 50V
2536	3198 016 36810	680pF 25V
2537	4822 126 13883	220pF 5% 50V
2538	4822 126 14305	100nF 10% 16V
2539	4822 126 14305	100nF 10% 16V
2541	4822 126 13883	220pF 5% 50V
2542	4822 126 13883	220pF 5% 50V
2543	4822 126 14305	100nF 10% 16V
2544	4822 126 14305	100nF 10% 16V
2545	4822 126 13879	220nF +80/-20% 16V
2546	4822 126 13883	220pF 5% 50V
2547	4822 126 13883	220pF 5% 50V
2548	4822 126 13883	220pF 5% 50V
2549	4822 122 33741	10pF 10% 50V
2550	4822 122 33741	10pF 10% 50V
2551	4822 122 33777	47pF 5% 63V
2552	4822 122 33777	47pF 5% 63V
2553	4822 122 33777	47pF 5% 63V
2554	4822 122 33741	10pF 10% 50V
2555	4822 126 14305	100nF 10% 16V
2556	4822 122 33741	10pF 10% 50V
2557	4822 122 33741	10pF 10% 50V
2558	4822 122 31765	100pF 2% 63V
2559	4822 122 31765	100pF 2% 63V
2560	4822 122 31765	100pF 2% 63V
2561	4822 122 31765	100pF 2% 63V
2562	3198 016 31020	1nF 25V
2563	4822 122 31765	100pF 2% 63V
2564	5322 126 11578	1nF 10% 50V
2565	4822 122 33777	47pF 5% 63V
2566	4822 124 22651	1µF 20% 50V
2567	4822 126 13879	220nF +80/-20% 16V
2568	4822 126 14223	2,2pF 50V
2569	4822 124 11947	10µF 20% 16V
2570	4822 124 12233	47µF 20% 25V
2571	4822 124 12233	47µF 20% 25V
2572	3198 028 44790	47µF 20% 35V
2573	3198 028 44790	47µF 20% 35V
2574	4822 122 33761	22pF 5% 50V
2575	4822 122 33761	22pF 5% 50V
2576	4822 122 33761	22pF 5% 50V
2577	4822 126 11671	33pF
2578	4822 126 14305	100nF 10% 16V
2579	4822 126 13883	220pF 5% 50V
2580	4822 126 13883	220pF 5% 50V
2581	4822 126 13883	220pF 5% 50V
2582	4822 126 13883	220pF 5% 50V
2583	4822 122 31765	100pF 2% 63V
2584	4822 122 31765	100pF 2% 63V
2850	4822 126 14494	22nF 10% 25V
2851	4822 126 14494	22nF 10% 25V
2852	4822 126 14494	22nF 10% 25V
2853	4822 126 14305	100nF 10% 16V

RESISTORS

3400	4822 051 30471	470R 5% 0,062W
3401	4822 051 30471	470R 5% 0,062W
3402	4822 051 30471	470R 5% 0,062W
3403	4822 051 30471	470R 5% 0,062W
3404	4822 051 30471	470R 5% 0,062W
3405	4822 051 30471	470R 5% 0,062W
3407	4822 051 20109	10R 5% 0,1W
3408	4822 051 20109	10R 5% 0,1W
3409	4822 051 30472	4k7 5% 0,062W
3410	4822 051 20109	10R 5% 0,1W
3411	4822 051 20109	10R 5% 0,1W
3413	4822 051 30105	1M 5% 0,062W
3414	4822 051 30471	470R 5% 0,062W
3415	4822 051 30471	470R 5% 0,062W
3416	4822 051 30471	470R 5% 0,062W
3417	4822 051 30471	470R 5% 0,062W
3418	4822 051 30471	470R 5% 0,062W
3419	4822 051 30471	470R 5% 0,062W
3420	4822 051 30471	470R 5% 0,062W
3421	4822 051 30471	470R 5% 0,062W
3422	4822 051 30471	470R 5% 0,062W
3423	4822 051 30471	470R 5% 0,062W
3424	4822 051 30471	470R 5% 0,062W
3425	4822 051 30471	470R 5% 0,062W
3428	4822 051 30471	470R 5% 0,062W
3429	4822 116 83883	470R 5% 0,5W
3430	4822 116 83883	470R 5% 0,5W
3431	4822 051 30471	470R 5% 0,062W

ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

RESISTORS

3432	4822 051 30471	470R 5% 0,062W
3433	4822 051 30471	470R 5% 0,062W
3434	4822 051 30102	1k 5% 0,062W
3435	4822 051 30471	470R 5% 0,062W
3436	4822 051 30471	470R 5% 0,062W
3437	4822 051 30471	470R 5% 0,062W
3438	4822 051 30222	2k2 5% 0,062W
3439	4822 051 30222	2k2 5% 0,062W
3444	4822 051 30471	470R 5% 0,062W
3445	4822 051 30471	470R 5% 0,062W
3446	4822 051 30471	470R 5% 0,062W
3447	4822 051 30471	470R 5% 0,062W
3448	4822 051 30471	470R 5% 0,062W
3449	4822 051 30471	470R 5% 0,062W
3450	4822 051 30471	470R 5% 0,062W
3451	4822 051 30471	470R 5% 0,062W
3452	4822 051 30471	470R 5% 0,062W
3453	4822 051 30471	470R 5% 0,062W
3454	4822 051 30471	470R 5% 0,062W
3455	4822 051 30471	470R 5% 0,062W
3456	4822 116 83883	470R 5% 0,5W
3457	4822 051 30471	470R 5% 0,062W
3458	4822 051 30471	470R 5% 0,062W
3459	4822 051 30471	470R 5% 0,062W
3460	4822 051 30471	470R 5% 0,062W
3461	4822 051 30471	470R 5% 0,062W
3462	4822 051 30471	470R 5% 0,062W
3463	4822 051 30471	470R 5% 0,062W
3464	4822 051 30471	470R 5% 0,062W
3465	4822 051 30471	470R 5% 0,062W
3466	4822 051 30471	470R 5% 0,062W
3467	4822 051 30471	470R 5% 0,062W
3468	4822 051 30471	470R 5% 0,062W
3469	4822 051 30471	470R 5% 0,062W
3470	4822 051 30471	470R 5% 0,062W
3471	4822 051 30471	470R 5% 0,062W
3472	4822 051 30471	470R 5% 0,062W
3473	4822 051 30471	470R 5% 0,062W
3474	4822 051 30221	220R 5% 0,062W
3475	4822 051 30221	220R 5% 0,062W
3476	4822 051 30471	470R 5% 0,062W
3477	4822 051 30471	470R 5% 0,062W
3479	4822 051 30471	470R 5% 0,062W
3480	4822 051 30471	470R 5% 0,062W
3485	4822 117 12925	47k 1% 0,063W
3490	4822 051 30471	470R 5% 0,062W
3491	4822 051 30471	470R 5% 0,062W
3492	4822 051 30471	470R 5% 0,062W
3500	4822 117 12864	82k 5% 0,6W
3501	4822 117 12864	82k 5% 0,6W
3502	4822 117 12864	82k 5% 0,6W
3503	4822 117 12864	82k 5% 0,6W
3504	4822 051 30471	470R 5% 0,062W
3505	4822 051 30471	470R 5% 0,062W
3511	4822 051 30272	2k7 5% 0,062W
3512	4822 051 30102	1k 5% 0,062W
3515	4822 117 12891	220k 1%
3516	4822 051 30222	2k2 5% 0,062W
3517	4822 051 30103	10k 5% 0,062W
3518	4822 051 30103	10k 5% 0,062W
3519	4822 051 30103	10k 5% 0,062W
3520	4822 051 30103	10k 5% 0,062W
3521	4822 051 30684	680k 5% 0,062W
3522	4822 117 12925	47k 1% 0,063W
3523	4822 051 30474	470k 5% 0,062W
3526	4822 116 52244	15k 5% 0,5W
3527	4822 117 12968	820R 5% 0,62W
3528	4822 051 30103	10k 5% 0,062W
3529	4822 051 30272	2k7 5% 0,062W
3530	4822 117 12903	1k8 1% 0,063W /22
3530	4822 117 12968	820R 5% 0,62W /37
3531	4822 051 30103	10k 5% 0,062W
3532	4822 051 30103	10k 5% 0,062W
3533	4822 051 30102	1k 5% 0,062W
3534	4822 051 30102	1k 5% 0,062W
3535	4822 051 20109	10R 5% 0,1W
3536	4822 051 20109	10R 5% 0,1W
3537	4822 116 52206	120R 5% 0,5W
3538	4822 116 52206	120R 5% 0,5W
3539	4822 051 30223	22k 5% 0,062W
3540	4822 051 30103	10k 5% 0,062W
3541	4822 051 30103	10k 5% 0,062W
3542	4822 116 83872	220R 5% 0,5W
3543	4822 051 30221	220R 5% 0,062W
3544	4822 051 30121	120R 5% 0,062W
3545	4822 051 30121	120R 5% 0,062W
3546	4822 051 30121	120R 5% 0,062W
3547	4822 051 30121	120R 5% 0,062W
3548	4822 051 30221	220R 5% 0,062W
3549	4822 051 30221	220R 5% 0,062W
3550	4822 051 30472	4k7 5% 0,062W
3551	4822 051 30103	10k 5% 0,062W
3552	4822 051 30103	10k 5% 0,062W
3553	4822 051 30103	10k 5% 0,062W
3554	4822 051 30103	10k 5% 0,062W
3555	4822 051 30221	220R 5% 0,062W
3556	4822 051 30121	120R 5% 0,062W
3557	4822 051 30271	270R 5% 0,062W
3558	4822 051 30221	220R 5% 0,062W
3559	4822 051 30221	220R 5% 0,062W
3560	4822 116 52175	100R 5% 0,5W
3561	4822 116 52175	100R 5% 0,5W
3562	4822 051 30103	10k 5% 0,062W
3563	4822 051 30103	10k 5% 0,062W
3564	4822 051 30221	220R 5% 0,062W
3565	4822 051 30221	220R 5% 0,062W

ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

3570	4822 051 20109	10R 5% 0,1W
3571	4822 051 20109	10R 5% 0,1W
3572	4822 051 30222	2k2 5% 0,062W
3573	4822 051 30103	10k 5% 0,062W
3574	4822 051 30103	10k 5% 0,062W
3576	4822 051 30103	10k 5% 0,062W
3577	4822 051 30103	10k 5% 0,062W
3578	4822 051 30103	10k 5% 0,062W
3579	4822 051 30103	10k 5% 0,062W
3580	4822 051 30102	1k 5% 0,062W
3581	4822 051 30102	1k 5% 0,062W
3582	4822 051 30102	1k 5% 0,062W
3583	4822 051 30223	22k 5% 0,062W
3584	4822 051 30102	1k 5% 0,062W
3585	4822 051 30334	330k 5% 0,062W
3586	4822 051 30102	1k 5% 0,062W
3587	4822 051 30102	1k 5% 0,062W
3588	4822 051 30102	1k 5% 0,062W
3589	4822 051 30102	1k 5% 0,062W
3590	4822 117 13632	100k 1% 0,62W
3591	4822 117 13632	100k 1% 0,62W
3592	4822 051 30102	1k 5% 0,062W
3593	4822 051 30102	1k 5% 0,062W
3594	4822 051 30102	1k 5% 0,062W
3595	4822 051 30272	2k7 5% 0,062W
3596	4822 051 30272	2k7 5% 0,062W
3597	4822 051 30103	10k 5% 0,062W
3598	4822 051 30103	10k 5% 0,062W
3599	4822 051 30471	470R 5% 0,062W
4401	4822 051 30008	0R Jumper 0603
4402	4822 051 30008	0R Jumper 0603
4403	4822 051 30008	0R Jumper 0603
4404	4822 051 30008	0R Jumper 0603
4405	4822 051 30008	0R Jumper 0603
4410	4822 051 30008	0R Jumper 0603
4411	4822 051 30008	0R Jumper 0603
4412	4822 051 30008	0R Jumper 0603
4413	4822 051 30008	0R Jumper 0603
4414	4822 051 30008	0R Jumper 0603
4415	4822 051 30008	0R Jumper 0603
4416	4822 051 30008	0R Jumper 0603
4418	4822 051 30008	0R Jumper 0603
4419	4822 051 30008	0R Jumper 0603
4420	4822 051 30008	0R Jumper 0603
4422	4822 051 30008	0R Jumper 0603
4423	4822 051 30008	0R Jumper 0603
4424	4822 051 30008	0R Jumper 0603
4425	4822 051 30008	0R Jumper 0603
4426	4822 051 30008	0R Jumper 0603
4427	4822 051 30008	0R Jumper 0603
4428	4822 051 30008	0R Jumper 0603
4429	4822 051 30008	0R Jumper 0603
4431	4822 051 30008	0R Jumper 0603
4434	4822 051 30008	0R Jumper 0603
4435	4822 051 30008	0R Jumper 0603
4850	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5400	4822 157 62552	Coil 2,2µH 5%
5401	4822 157 62552	Coil 2,2µH 5%
5402	5322 242 73686	RES CER 12MHz
5403	4822 242 70938	RES XTL 32,768kHz
5404	4822 242 72195	QUARZ 4,332 MHz
5405	4822 157 62552	Coil 2,2µH 5%
5406	4822 157 62552	Coil 2,2µH 5%
5407	4822 157 62552	Coil 2,2µH 5%
5850	4822 157 62552	Coil 2,2µH 5%
5851	4822 157 62552	Coil 2,2µH 5%
5852	4822 157 62552	Coil 2,2µH 5%

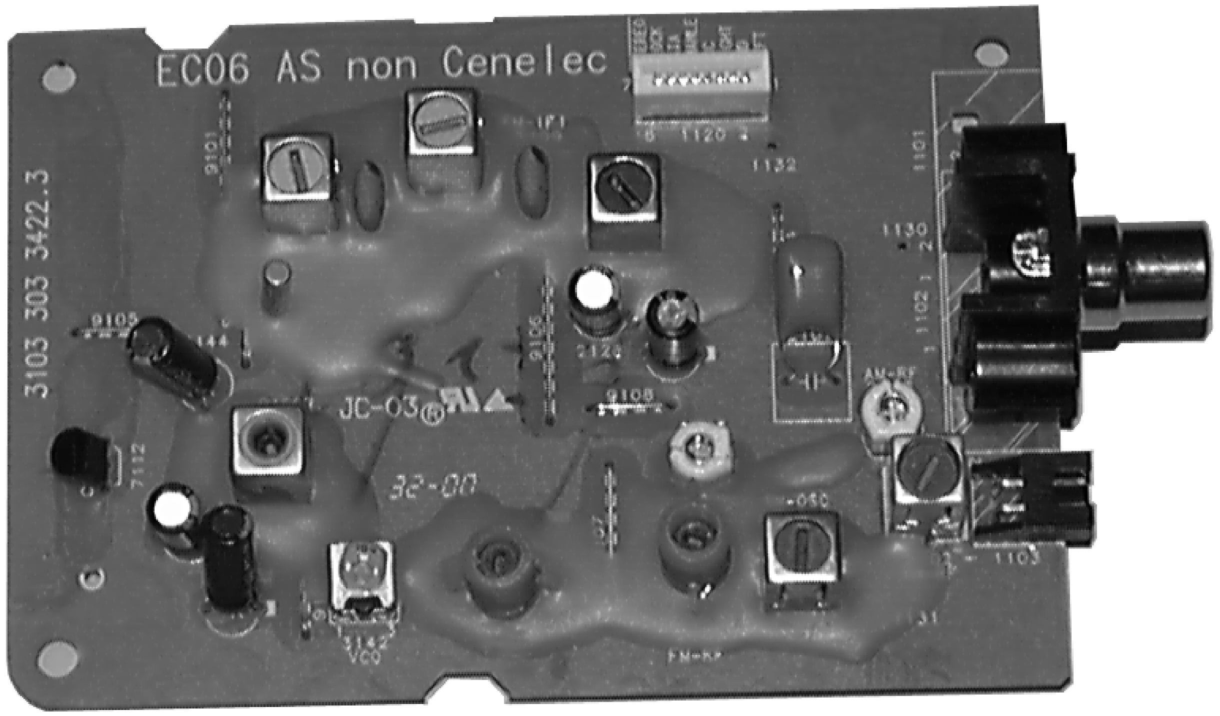
DIODES

6400	4822 130 30621	1N4148
6401	4822 130 30621	1N4148
6402	4822 130 30621	1N4148
6403	4822 130 30621	1N4148
6404	4822 130 30621	1N4148
6405	4822 130 34174	BZX79-B4V7
6406	4822 130 30621	1N4148
6407	4822 130 30621	1N4148
6408	4822 130 30621	1N4148
6409	4822 130 30621	1N4148
6410	4822 130 31878	1N4003G
6411	4822 130 31878	1N4003G
6412	4822 130 30621	1N4148
6413	4822 130 31878	1N4003G
6414	4822 130 30621	1N4148
6420	9322 160 65676	LED VS LTL-4221NLC-VA

TRANSISTORS & INTEGRATED CIRCUITS

7400	3139 110 52600	TMP88CU74YF-‘C55S52601’
7401	4822 209 31981	SAA6579T/V1
7402	5322 209 11446	HEF4051BT
7403	4822 209 15449	74HC4094D
7404	4822 209 15449	74HC4094D
7405	9322 145 26668	M24C02-WMN6
7406	5322 130 60159	BC847B
7407	5322 130 60159	BC847B
7408	5322 130 60159	BC847B
7409	5322 130 60159	BC847B
7410	5322 130 60159	BC847B
7411	4822 130 60373	BC857B
7412	5322 130 60159	BC847B
7413	5322 130 60159	BC847B

Note : Only the parts mentioned in this list are normal service spare parts.


EC06 AS non Cenelec
3103 303 3422.3
9101
9105
9106
9108
1120
1132
1130
1101
1102
1103
7112
JC-03
32-00
3142
VCO
AM-RF
FM-RF
-OSC

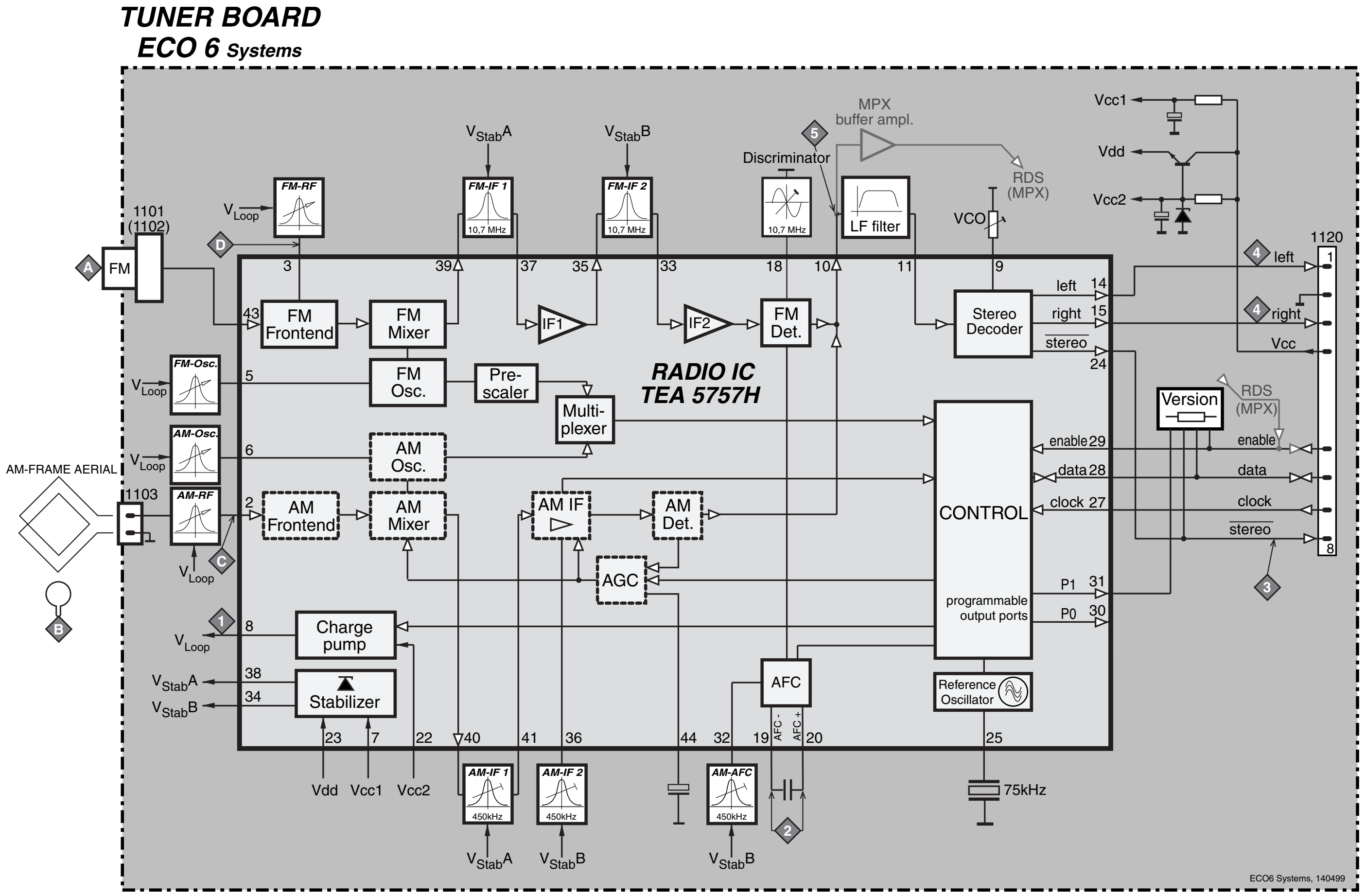
ECO6 Tuner Board

version: *SYSTEMS non-CENELEC*

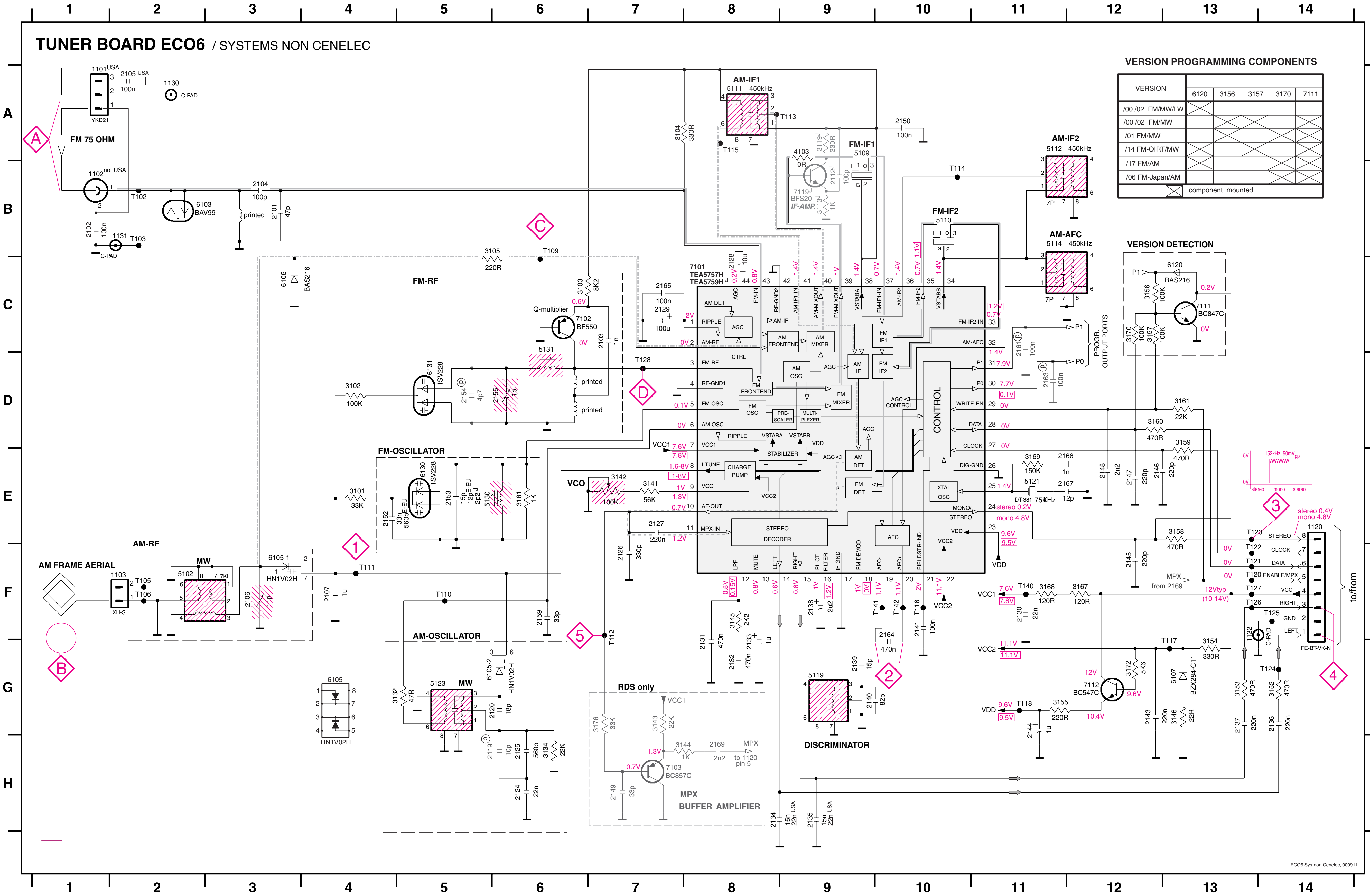
TABLE OF CONTENTS

Blockdiagram 7A-1
Schematic Diagram...7A-2
Component Layout..7A-3
Adjustment table 7A-3
Electrical Partslist..7A-4

BLOCK DIAGRAM


TUNER BOARD
ECO 6 Systems
RADIO IC
TEA 5757H
1101
(1102)
FM
A
V$_{Loop}$
FM-RF
D
V$_{Stab}$A
V$_{Stab}$B
FM-IF 1
10,7 MHz
FM-IF 2
10,7 MHz
Discriminator
10,7 MHz
5
MPX
buffer ampl.
LF filter
RDS
(MPX)
VCO
Vcc1
Vdd
Vcc2
1120
3
39
37
35
33
18
10
11
9
43
FM
Frontend
FM
Mixer
IF1
IF2
FM
Det.
Stereo
Decoder
left 14
right 15
stereo
24
4
left
right
Vcc
FM-Osc.
5
FM
Osc.
Pre-
scaler
Multi-
plexer
Version
AM-Osc.
6
AM
Osc.
enable 29
data 28
clock 27
enable
data
clock
stereo
AM-FRAME AERIAL
1103
AM-RF
2
AM
Frontend
AM
Mixer
AM IF
AM
Det.
CONTROL
C
B
AGC
programmable
output ports
P1 31
P0 30
3
1
8
Charge
pump
38
34
Stabilizer
23
7
22
40
41
36
44
32
19
20
25
AFC
AFC -
AFC +
Reference
Oscillator
Vdd
Vcc1
Vcc2
AM-IF 1
450kHz
AM-IF 2
450kHz
AM-AFC
450kHz
2
75kHz
1
8
ECO6 Systems, 140499

TUNER BOARD ECO6 / SYSTEMS NON CENELEC


1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H
FM 75 OHM
1101 USA
2105 USA 100n
1130 C-PAD
YKD21
1102 not USA
T102
6103 BAV99
2104 100p
printed
2101 47p
2102 100n
1131 T103 C-PAD
AM-IF1 5111 450kHz
T113 T115
3104 330R
2150 100n
FM-IF1 5109
4103 0R
7119 BFS20 IF-AMP.
3119 330R
2112 100p
3113 1K
AM-IF2 5112 450kHz
T114
FM-IF2 5110
AM-AFC 5114 450kHz
VERSION DETECTION
6120 BAS216
3156 100K
7111 BC847C
3170 100K
3157 100K
P1 P0
PROGR. OUTPUT PORTS
3105 220R
T109
6106 BAS216
FM-RF
3103 8K2
Q-multiplier
7102 BF550
2103 1n
5131
6131 1SV228
2154 4p7
2155 1p
printed
3102 100K
T128
7101 TEA5757H TEA5759H
2165 100n
2129 100u
2128 10u
AM DET RIPPLE AGC AM-IF AM FRONTEND AM MIXER FM-RF CTRL AM OSC FM IF1 FM IF2 AM IF FM FRONTEND FM MIXER FM OSC PRE-SCALER MULTI-PLEXER AGC CONTROL CONTROL STABILIZER CHARGE PUMP AM DET FM DET XTAL OSC STEREO DECODER AFC
FM-OSCILLATOR
6130 1SV228
2153 15p 12p E-EU J 2p2
5130
3181 1K
2152 33n 560p E-EU
3101 33K
VCO
3142 100K
3141 56K
2127 220n
2126 330p
2107 1u
2159 33p
T110
T111
T112
AM FRAME AERIAL
AM-RF
MW
5102
1103 XH-S
T105 T106
2106 1p
6105-1 HN1V02H
AM-OSCILLATOR
5123 MW
3132 47R
6105-2 HN1V02H
2120 18p
2119 10p
2125 560p
3134 22K
2124 22n
6105 HN1V02H
RDS only
VCC1
3143 22K
3144 1K
2169 2n2
MPX to 1120 pin 5
3176 33K
7103 BC857C
2149 33p
MPX BUFFER AMPLIFIER
2131 470n
3145 2K2
2132 470n
2133 1u
2138 2u2
T141 T142 T116
2164 470n
2141 100n
VCC2
5119
DISCRIMINATOR
2139 15p
2140 82p
2134 15n 22n USA
2135 15n 22n USA
2161 100n
2163 100n
3161 22K
3160 470R
3159 470R
3169 150K
2166 1n
5121 DT-381 75kHz
2167 12p
2148 2n2
2147 220p
2146 220p
3158 470R
2145 220p
VDD
VCC1 T140
3168 120R
3167 120R
2130 22n
MPX from 2169
12Vtyp (10-14V)
VCC2
T117
3154 330R
3172 5K6
7112 BC547C
6107 BZX284-C11
2143 220n
3146 22R
VDD T118
3155 220R
2144 1u
T123 T122 T121 T120 T127 T126 T125 T124
1120
STEREO CLOCK DATA ENABLE/MPX VCC RIGHT GND LEFT
FE-BT-VK-N
to/from
1132 C-PAD
3153 470R
3152 470R
2137 220n
2136 220n
stereo 0.4V mono 4.8V
5V 0V 152kHz, 50mVpp stereo mono stereo
A B C D 1 2 3 4 5
ECO6 Sys-non Cenelec, 000911

VERSION PROGRAMMING COMPONENTS

VERSION	6120	3156	3157	3170	7111
/00 /02 FM/MW/LW	☒				
/00 /02 FM/MW		☒	☒		☒
/01 FM/MW		☒		☒	☒
/14 FM-OIRT/MW	☒		☒		☒
/17 FM/AM	☒			☒	☒
/06 FM-Japan/AM				☒	☒

☒ component mounted

1101	A1
1102	B1
1103	F2
1120	E14
1130	A2
1131	B2
1132	G13
2101	B3
2102	B1
2103	C7
2104	B3
2105	A2
2106	F3
2107	F4
2119	H6
2120	G6
2124	H6
2125	H6
2126	F7
2127	E7
2128	C8
2129	C7
2130	F11
2131	G8
2132	G8
2133	G8
2134	H8
2135	H9
2136	G14
2137	G13
2138	F9
2139	G9
2140	G9
2141	F10
2143	G12
2144	G11
2145	F12
2146	E12
2147	E12
2148	E12
2149	H7
2150	A10
2152	E4
2153	E5
2154	D5
2155	D5
2159	F6
2161	C11
2163	D11
2164	F10
2165	C7
2166	E11
2167	E11
2169	H8
3101	E4
3102	D4
3103	C6
3104	A7
3105	B6
3132	G5
3134	H6
3141	E7
3142	E7
3143	G7
3144	H7
3145	F8
3146	G13
3152	G14
3153	G13
3154	G13
3155	G11
3156	C12
3157	C12
3158	E13
3159	D13
3160	D12
3161	D13
3167	F12
3168	F11
3169	E11
3170	C12
3172	G12
3176	G7
3181	E6
5102	F2
5109	B9
5110	B10
5111	A8
5112	A11
5114	B11
5119	G9
5121	E11
5123	G5
5130	E5
5131	C6
6103	B2
6105-1	F3
6105-2	G5
6106	C3
6107	G13
6120	C13
6130	E5
6131	D5
7101	C8
7102	C6
7103	H7
7111	C13
7112	G12
T102	B2
T103	B2
T105	F2
T106	F2
T109	B6
T110	F5
T111	F4
T112	F7
T113	A8
T114	B10
T115	A8
T116	F10
T117	G13
T118	G11
T120	F13
T121	F13
T122	F13
T123	E13
T124	G14
T125	F14
T126	F13
T127	F13
T128	D7
T140	F11
T141	F10
T142	F10

LEGEND

ⓟ...for provision only
USA ... for USA version only
E-EU ... for East European version only
J ... for Japanese version only

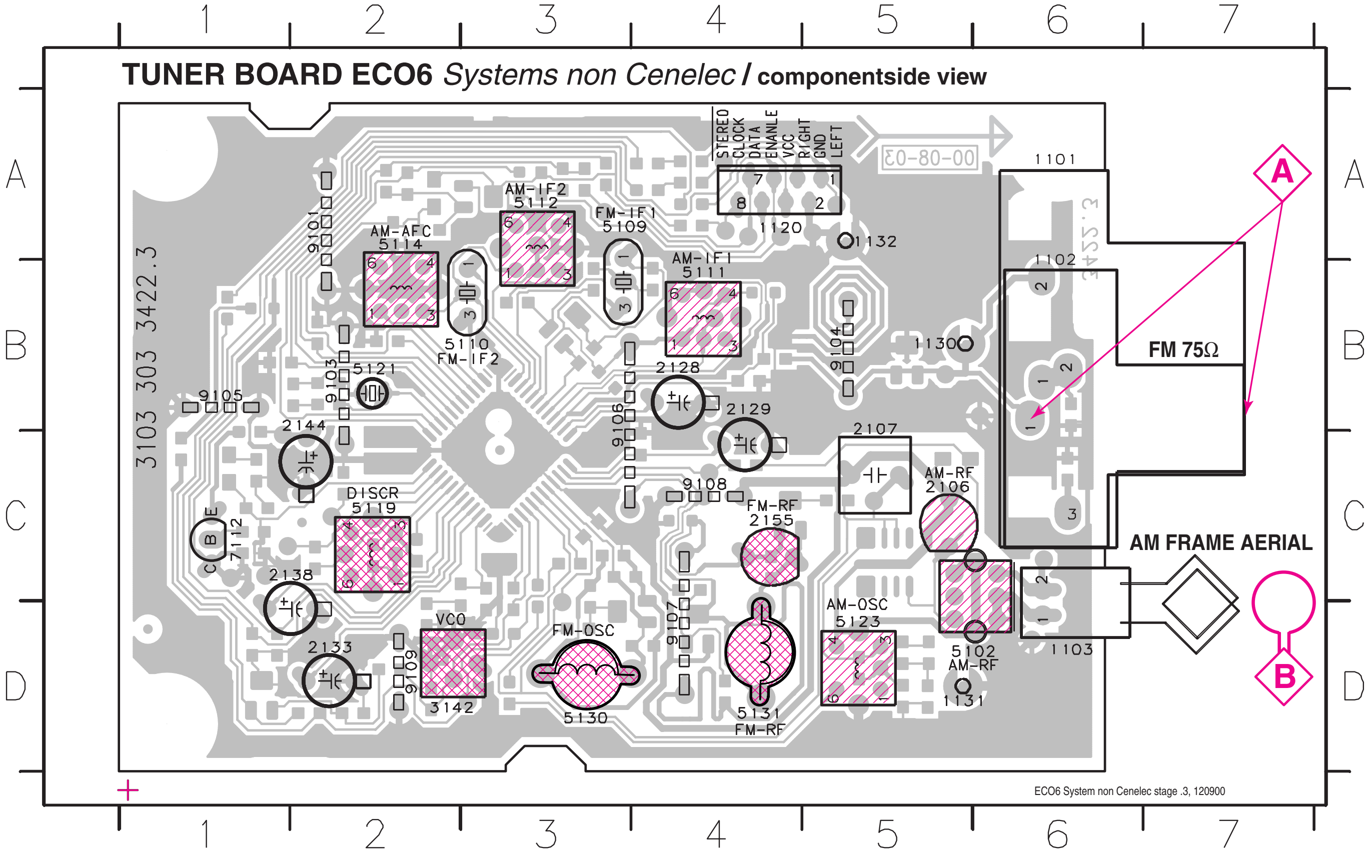
...V FM mode stereo
...V MW mode
...V LW mode
Ⓥ EVM
voltages measured while set is tuned to a strong transmitter

Signal path

FM
AM
MPX (Audio Frequency)
AF - left/right

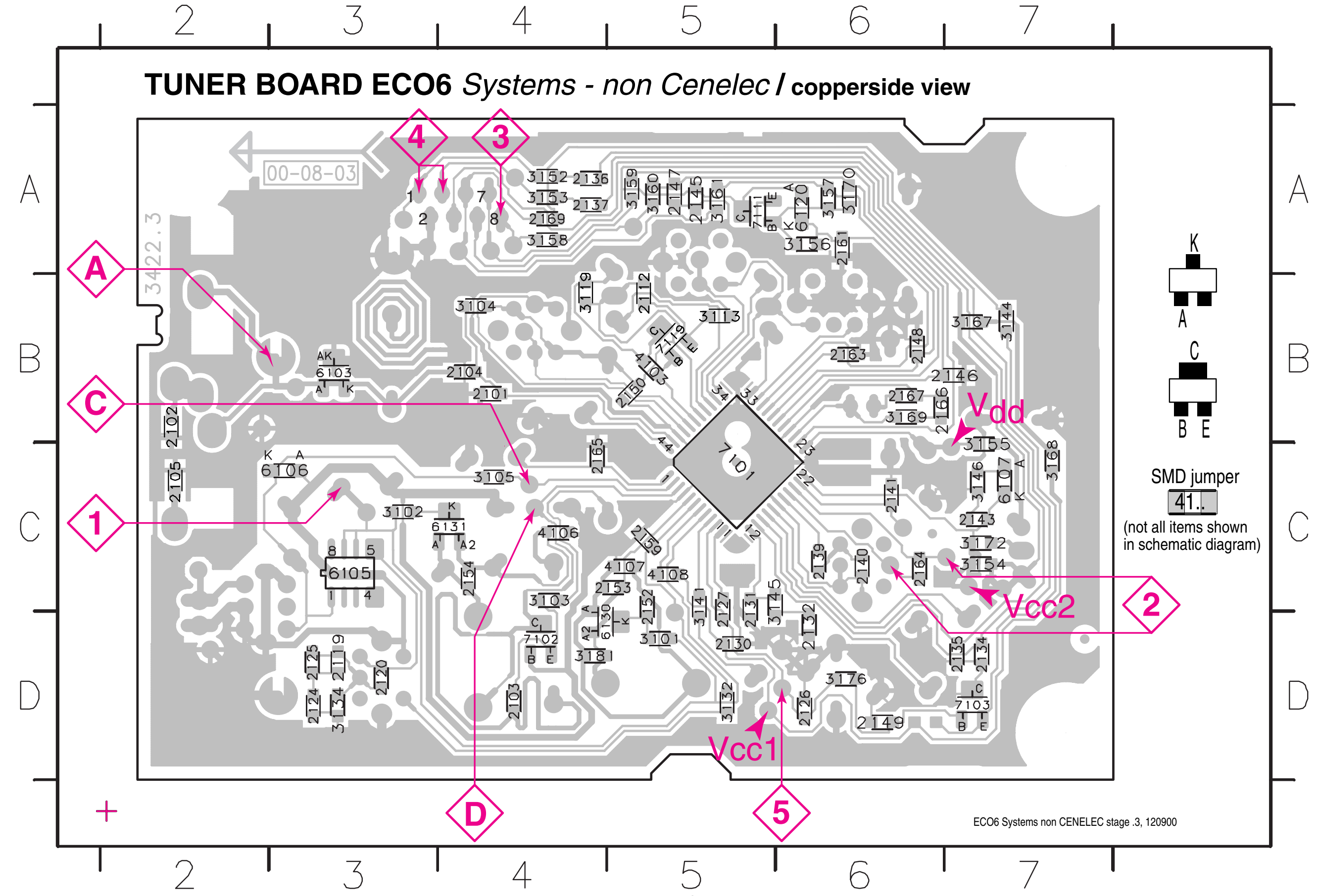
1101	A6	1120	A4	1132	A5	2128	C4	2138	C2	3142	D2	5110	B3	5114	A2	5123	D5	7112	C1	9104	B5	9107	D4
1102	B6	1130	B5	2106	C5	2129	B4	2144	B2	5102	D6	5111	B4	5119	C2	5130	D3	9101	A2	9105	B1	9108	C4
1103	D6	1131	D5	2107	B5	2133	D2	2155	C4	5109	A3	5112	A3	5121	B2	5131	D4	9103	B2	9106	B3	9109	D2

TUNER BOARD ECO6 *Systems non Cenelec* / **componentside view**


1
2
3
4
5
6
7
A
B
C
D
3103 303 3422.3
STEREO
CLOCK
DATA
ENABLE
VCC
RIGHT
GND
LEFT
E0-80-00
1101
1102
1103
1120
1130
1131
1132
AM-AFC 5114
AM-IF2 5112
FM-IF1 5109
AM-IF1 5111
5110 FM-IF2
5121
9101
9103
9104
9105
9106
9107
9108
9109
2107
2128
2129
2138
2133
2144
7112
DISCR 5119
VCO
3142
FM-OSC
5130
FM-RF 2155
5131 FM-RF
AM-RF 2106
AM-OSC 5123
5102 AM-RF
FM 75Ω
AM FRAME AERIAL
A
B
ECO6 System non Cenelec stage .3, 120900

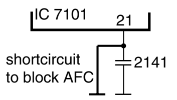
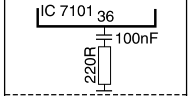
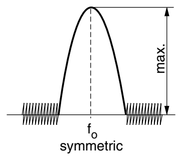
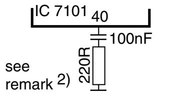
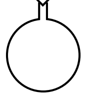
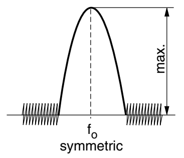
2101	B4	2119	D3	2130	D5	2137	A4	2146	B7	2153	C5	2165	C4	3103	C4	3134	D3	3152	A4	3158	A4	3169	B6	4106	C4	6107	C7	7103	D7
2102	B1	2120	D3	2131	C5	2139	C6	2147	A5	2154	C4	2166	B6	3104	B4	3141	C5	3153	A4	3159	A5	3170	A6	4107	C5	6120	A6	7111	A5
2103	D4	2124	D3	2132	D6	2140	C6	2148	B6	2159	C5	2167	B6	3105	C4	3143	D6	3154	C7	3160	A5	3172	C7	4108	C5	6130	D4	7119	B5
2104	B4	2125	D3	2134	D7	2141	C6	2149	D6	2161	A6	2169	A4	3113	B5	3144	B7	3155	C7	3161	A5	3176	D6	6103	B3	6131	C4		
2105	C1	2126	D6	2135	D7	2143	C7	2150	B5	2163	B6	3101	D5	3119	B5	3145	C5	3156	A6	3167	B7	3181	D4	6105	C3	7101	C5		
2112	B5	2127	C5	2136	A4	2145	A5	2152	C5	2164	C6	3102	C3	3132	D5	3146	C7	3157	A6	3168	C7	4103	B5	6106	C3	7102	D4		

TUNER BOARD ECO6 *Systems - non Cenelec* / **copperside view**


2
3
4
5
6
7
A
B
C
D
00-08-03
3422.3
A
C
1
D
5
2
3
4
Vdd
Vcc1
Vcc2
7101
6103
6105
6106
6131
7102
7103
K
A
C
B E
SMD jumper
41.
(not all items shown in schematic diagram)
ECO6 Systems non CENELEC stage .3, 120900

These assembly drawings show a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

TUNER ADJUSTMENT TABLE (**ECO6** FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130	1	8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123		6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM IF						
FM	10.7MHz, 45mV continuous wave	D	 IC 7101 21 shortcircuit to block AFC 2141	5119	2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A mod=1kHz Δf=±22.5kHz	108MHz	2155	4	MAX
	87.5MHz (65.81MHz)		87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz 1)
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	C Δf=±10kHz V_{RF} = 0.5mV (as low as possible)	 IC 7101 36 100nF 220R	5111	5	
			see remark 2)  IC 7101 40 100nF 220R	5112		
AM AFC **MW**		C continuous wave V_{RF} = 2mV		5114	2	0 ± 2 mV DC
AM RF 3)						
MW 4) FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	B  Δf = ±30kHz V_{RF} as low as possible	1494kHz	2106	5	
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz		1500kHz	2106		
	560kHz		560kHz	5102		

ECO6, Sys + PA with frame aerial, 070799

Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

1) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

2) RC network serves for damping the IF-filter while adjusting the other one.

3) For AM RF adjustments the original frame antenna has to be used !

4) MW has to be aligned before LW.

↕ Repeat

Electrical Partslist *ECO6* SYSTEMS NON-CENELEC

MISCELLANEOUS

1101	2422 015 19376	SOCKET 2P CLICKFIT	USA only
1102	4822 267 10283	SOCKET COAX, IEC 75Ω	not USA
1103	4822 265 31184	JST CONNECTOR 2 POLE	
1120	4822 265 11515	FFC SOCKET, 8P	

CAPACITORS

2101©	4822 126 13692	47pF	1%	63V	
2102©	4822 126 13838	100nF	10%	50V	not USA
2103©	5322 122 31647	1nF	10%	63V	
2104©	5322 122 32531	100pF	5%	50V	
2105©	4822 126 13838	100nF	10%	50V	USA only
2106	2020 800 00191	3-11pF TRIMCAP.,N450			
2107	4822 121 51319	1µF	20%	50V	
2120©	4822 126 13689	18pF	1%	63V	
2124©	5322 122 32654	22nF	10%	63V	
2125©	2020 552 96199	560pF	1%	50V	
2126©	5322 122 31863	330pF	5%	50V	
2127©	4822 126 14076	220nF	20%	25V	
2128	4822 124 40248	10µF	20%	63V	
2129	4822 124 41584	100µF	20%	10V	
2130©	5322 122 32654	22nF	10%	63V	
2131©	4822 126 13482	470nF	20%	16V	
2132©	4822 126 13482	470nF	20%	16V	
2133	4822 124 21913	1µF	20%	63V	
2134©	4822 126 13188	15nF	5%	63V	not USA
2134©	5322 122 32654	22nF	10%	63V	USA only
2135©	4822 126 13188	15nF	5%	63V	not USA
2135©	5322 122 32654	22nF	10%	63V	USA only
2136©	4822 126 14076	220nF	20%	25V	
2137©	4822 126 14076	220nF	20%	25V	
2138	4822 124 22652	2,2µF	20%	50V	
2139©	4822 126 14236	15pF	5%	50V	
2140©	4822 126 13695	82pF	1%	63V	
2141©	4822 126 13838	100nF	10%	50V	
2143©	4822 126 14076	220nF	20%	25V	
2144	4822 124 21913	1µF	20%	63V	
2145©	4822 122 33575	220pF	5%	50V	
2146©	4822 122 33575	220pF	5%	50V	
2147©	4822 122 33575	220pF	5%	50V	
2148©	4822 122 33127	2,2nF	10%	63V	
2149©	5322 122 32659	33pF	5%	50V	RDS only
2150©	4822 126 13838	100nF	10%	50V	
2152©	4822 126 12105	33nF	5%	63V	not for East Europe
2152©	5322 116 80853	560pF	5%	63V	for East Europe only
2153©	4822 126 13486	15pF	2%	63V	not for East Europe
2153©	4822 122 33926	12pF	2%	50V	for East Europe only
2155	2020 800 00191	3-11pF TRIMCAP.,N450			
2159©	5322 122 32659	33pF	5%	50V	
2164©	4822 126 13482	470nF	20%	16V	
2165©	4822 126 13838	100nF	10%	50V	
2166©	5322 122 31647	1nF	10%	63V	
2167©	4822 122 33926	12pF	5%	50V	
2169©	4822 122 33127	2,2nF	10%	63V	RDS only

RESISTORS

3101©	4822 051 20333	33kΩ	5%	0,1W	
3102©	4822 117 10837	100kΩ	1%	0,1W	
3103©	4822 051 20822	8,2kΩ	5%	0,1W	
3104©	4822 117 13577	330Ω	1%	0,1W	
3105©	4822 117 11503	220Ω	5%	0,1W	
3132©	4822 051 20479	47Ω	5%	0,1W	
3134©	4822 051 20223	22kΩ	5%	0,1W	
3141©	4822 117 11148	56kΩ	1%	0,1W	
3142	4822 100 12159	TRIMPOT. 100kΩ			
3143©	4822 051 20223	22kΩ	5%	0,1W	RDS only
3144©	4822 051 10102	1kΩ	2%	0,25W	RDS only
3145©	4822 117 11449	2,2kΩ	1%	0,1W	
3146©	4822 051 20229	22Ω	5%	0,1W	
3152©	4822 051 20471	470Ω	5%	0,1W	
3153©	4822 051 20471	470Ω	5%	0,1W	
3154©	4822 117 13577	330Ω	1%	0,1W	
3155©	4822 117 11503	220Ω	5%	0,1W	
3156©	4822 117 10837	100kΩ	1%	0,1W	
3157©	4822 117 10837	100kΩ	1%	0,1W	
3158©	4822 051 20471	470Ω	5%	0,1W	
3159©	4822 051 20471	470Ω	5%	0,1W	
3160©	4822 051 20471	470Ω	5%	0,1W	
3161©	4822 051 20223	22kΩ	5%	0,1W	
3167©	4822 051 20121	120Ω	5%	0,1W	
3168©	4822 051 20121	120Ω	5%	0,1W	
3169©	4822 051 20154	150kΩ	5%	0,1W	
3170©	4822 117 10837	100kΩ	1%	0,1W	
3172©	4822 051 20562	5,6kΩ	5%	0,1W	
3176©	4822 051 20333	33kΩ	5%	0,1W	RDS only
3181©	4822 051 10102	1kΩ	2%	0,25W	
4103©	4822 051 20008	CHIP JUMPER 0805			
4106©	4822 051 20008	CHIP JUMPER 0805			
4107©	4822 051 20008	CHIP JUMPER 0805			
4108©	4822 051 20008	CHIP JUMPER 0805			

COILS

5102	4822 157 71634	RF-COIL MW
5109	4822 242 70665	FM-IF FILTER 10,7MHz
5110	4822 242 70665	FM-IF FILTER 10,7MHz
5111	2422 549 44023	AM-IF FILTER 450kHz
5112	4822 157 70302	AM-IF FILTER 450kHz
5114	4822 157 70302	AM-IF FILTER 450kHz
5119	4822 157 11443	DISCRIMINATOR COIL
5121	4822 242 10261	QUARTZ 75kHz
5123	2422 549 44108	RF-COIL, AM-OSCILLATOR
5130	4822 157 11843	RF COIL 1,5 TURNS
5131	4822 157 11843	RF COIL 1,5 TURNS

DIODES

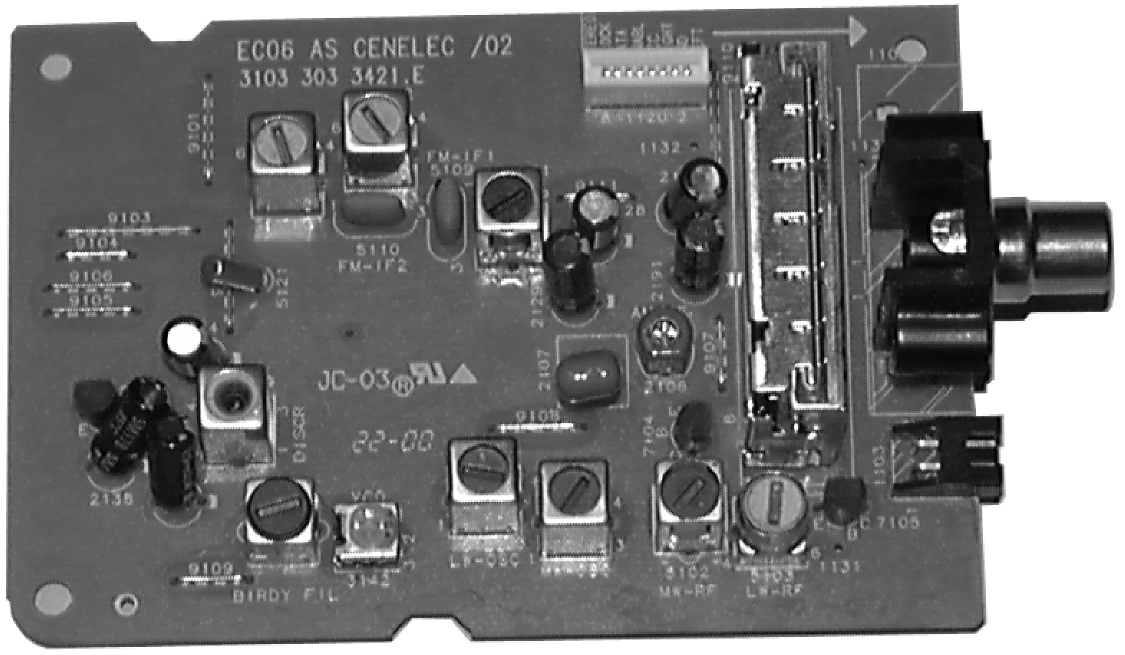
6103©	5322 130 34337	BAV99
6105©	4822 130 83075	HN1V02H
6106©	4822 130 83757	BAS216
6107©	9340 386 90115	BZX284-C11
6120©	4822 130 83757	BAS216
6130©	4822 130 82833	1SV228
6131©	4822 130 82833	1SV228

TRANSISTORS

7102	4822 130 42131	BF550	
7103©	5322 130 42756	BC857C	RDS only
7111©	5322 130 42755	BC847C	
7112	4822 130 44503	BC547C	

INTEGRATED CIRCUITS

7101©	9351 740 80557	TEA5757H/V1, RADIO IC


EC06 AS CENELEC /02
3103 303 3421.E
FM-IF1
5110
FM-IF2
DISCR
JC-03
22-00
VCO
BIRDY FIL
LW-OSC
MW-RF
LW-RF
2135
9109
3142
7105
1131

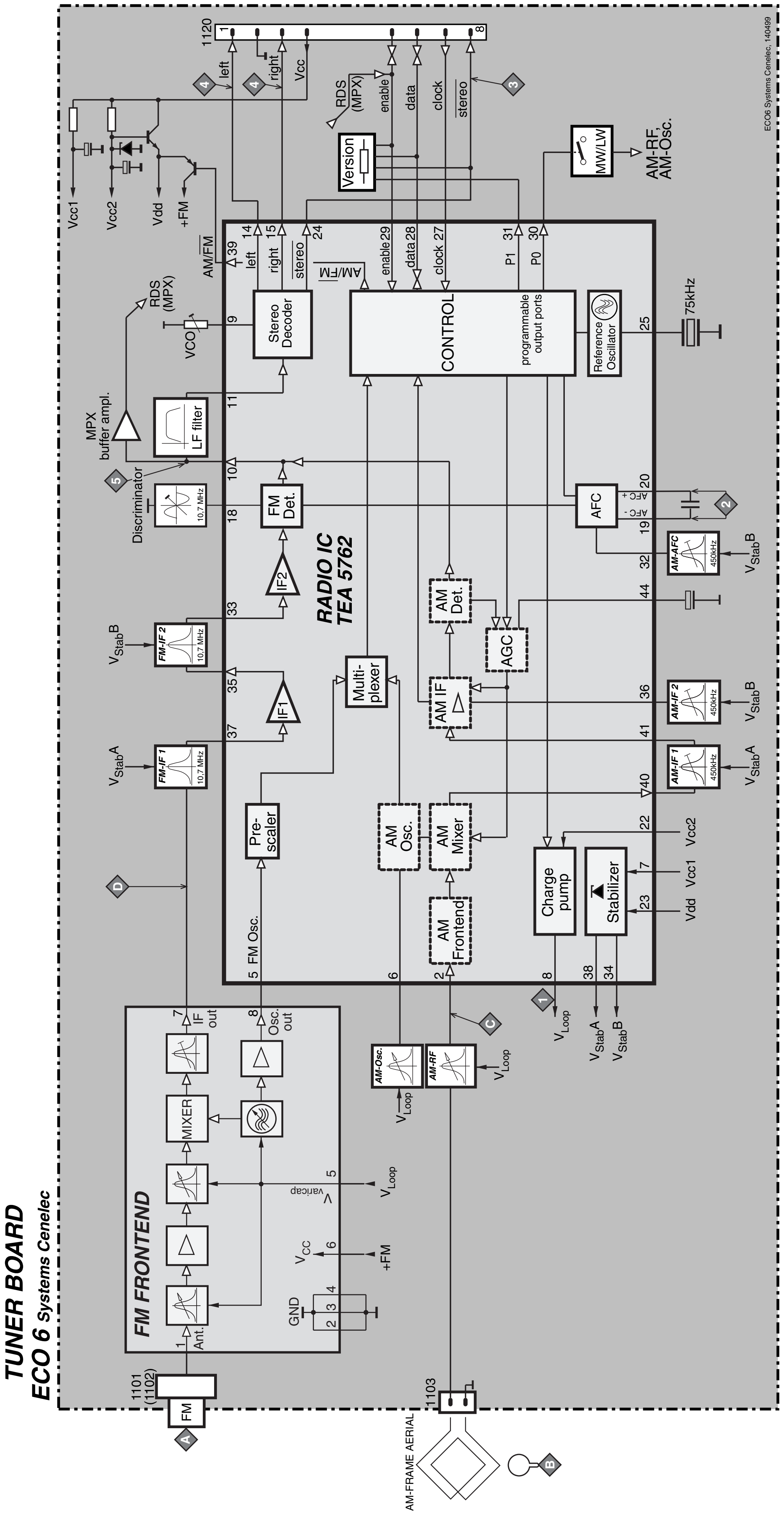
ECO6 Tuner Board

version: ***SYSTEMS CENELEC***

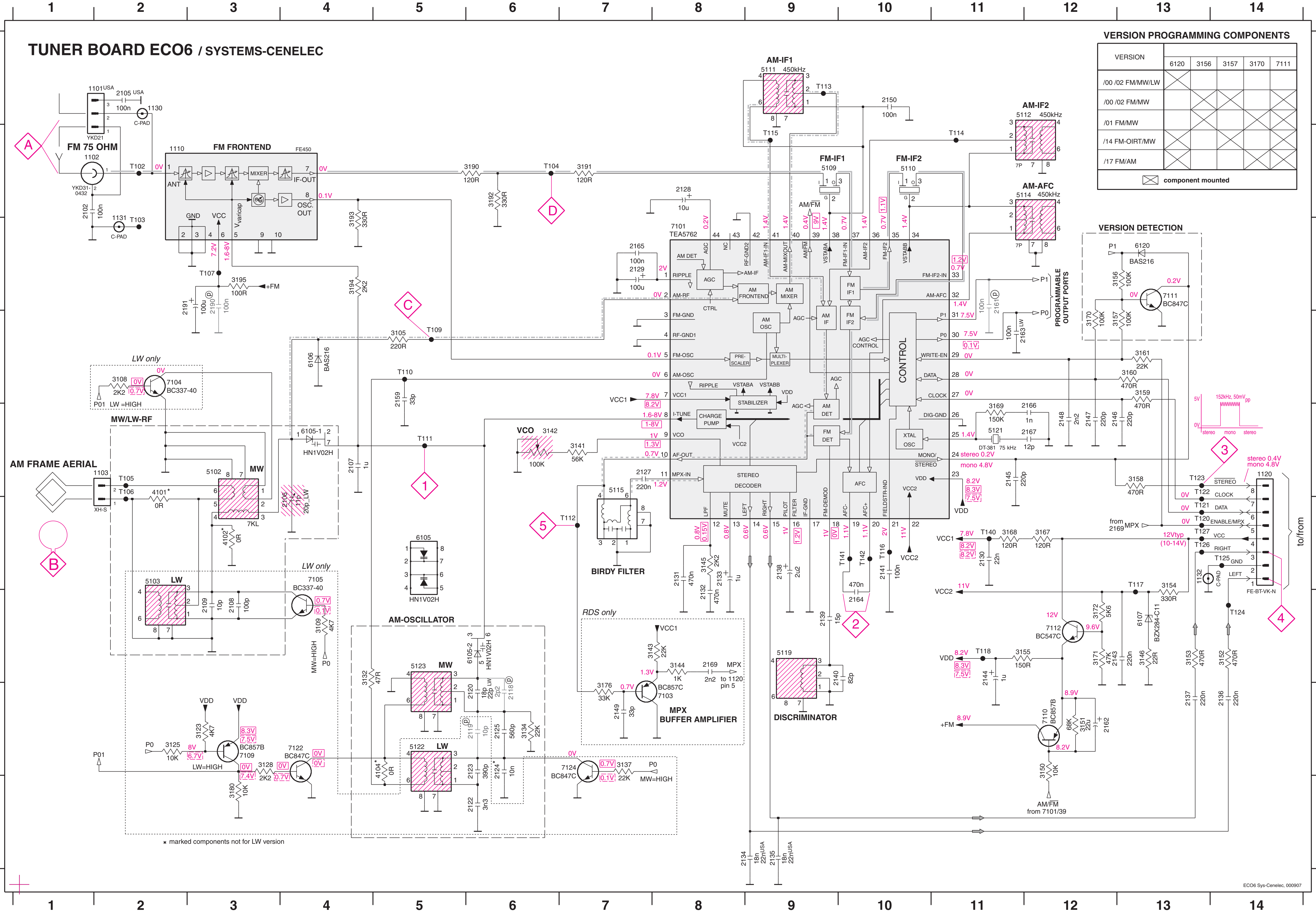
TABLE OF CONTENTS

Blockdiagram 7B-1
Schematic Diagram...7B-2
Component Layout..7B-3
Adjustment table 7B-3
Electrical Partslist..7B-4

BLOCK DIAGRAM


TUNER BOARD
ECO 6 Systems Cenelec
RADIO IC
TEA 5762
FM FRONTEND
CONTROL
programmable output ports
Reference Oscillator
Stereo Decoder
LF filter
MPX buffer ampl.
Discriminator
FM Det.
IF2
IF1
FM-IF 2
FM-IF 1
Pre-scaler
Multi-plexer
AM Osc.
AM Mixer
AM Frontend
AM IF
AM Det.
AGC
AFC
Charge pump
Stabilizer
AM-AFC
AM-IF 2
AM-IF 1
AM-Osc.
AM-RF
MIXER
Version
MW/LW
AM-RF, AM-Osc.
75kHz
VCO
RDS (MPX)
AM/FM
left
right
Vcc
enable
data
clock
stereo
Vcc1
Vcc2
Vdd
+FM
VLoop
VStabA
VStabB
GND
varicap
Ant.
IF out
Osc. out
FM Osc.
1120
1101 (1102)
1103
FM
AM-FRAME AERIAL
ECO6 Systems Cenelec 140499

TUNER BOARD ECO6 / SYSTEMS-CENELEC


VERSION PROGRAMMING COMPONENTS
VERSION
6120
3156
3157
3170
7111
/00 /02 FM/MW/LW
/00 /02 FM/MW
/01 FM/MW
/14 FM-OIRT/MW
/17 FM/AM
component mounted
VERSION DETECTION
FM 75 OHM
FM FRONTEND
AM FRAME AERIAL
MW/LW-RF
LW only
MW
LW
AM-OSCILLATOR
AM-IF1
AM-IF2
AM-AFC
FM-IF1
FM-IF2
7101 TEA5762
CONTROL
STEREO DECODER
VCO
BIRDY FILTER
RDS only
MPX BUFFER AMPLIFIER
DISCRIMINATOR
PROGRAMMABLE OUTPUT PORTS
to/from
FE-BT-VK-N
× marked components not for LW version
ECO6 Sys-Cenelec, 000907

1101	A2
1102	B1
1103	E2
1110	B2
1120	E14
1130	A2
1131	C2
1132	F13
2102	B1
2105	A2
2106	E3
2107	E4
2108	G3
2109	G3
2118	H6
2119	H6
2120	H6
2122	I6
2123	H6
2124	H6
2125	H6
2127	E7
2128	B8
2129	C7
2130	F11
2131	F8
2132	F8
2133	F8
2134	I8
2135	I9
2136	H14
2137	H13
2138	F9
2139	G9
2140	G9
2141	F10
2143	G12
2144	G11
2145	E11
2146	E12
2147	E12
2148	E12
2149	H7
2150	A10
2159	D5
2161	C11
2162	H12
2163	D11
2164	G10
2165	C7
2166	E11
2167	E11
2169	G8
2190	C3
2191	C3
3105	D5
3108	D2
3109	G4
3123	H3
3125	H2
3128	H3
3132	G4
3134	H6
3137	H7
3141	E7
3142	E6
3143	G7
3144	G8
3145	F8
3146	G13
3150	H12
3151	H12
3152	G14
3153	G13
3154	F13
3155	G12
3156	C12
3157	D12
3158	E13
3159	D13
3160	D13
3161	D13
3167	F12
3168	F11
3169	E11
3170	D12
3171	G12
3172	G12
3176	H7
3180	I3
3190	B6
3191	B7
3192	B6
3193	B4
3194	C4
3195	C3
4101	E2
4102	F3
4104	H5
5102	E3
5103	F2
5109	B9
5110	B10
5111	A9
5112	A11
5114	B11
5115	E7
5119	G9
5121	E11
5122	H5
5123	G5
6105-1	E4
6105-2	G6
6106	D4
6107	G13
6120	C13
7101	C8
7103	H8
7104	D2
7105	F4
7109	H3
7110	H12
7111	C13
7112	G12
7122	H4
7124	H7
T102	B2
T103	B2
T104	B6
T105	E2
T106	E2
T107	C3
T109	D5
T110	D5
T111	E5
T112	F7
T113	A9
T114	B11
T116	F10
T117	F13
T118	G11
T120	F13
T121	F13
T122	E13
T123	E13
T124	G14
T125	F14
T126	F13
T127	F13
T140	F11
T141	F10
T142	F10

LEGEND

* ... only assembled in FM/AM-version
ⓟ...for provision only
USA ... for USA version only
LW ... for LW version only

SMD jumper
41xx
0R

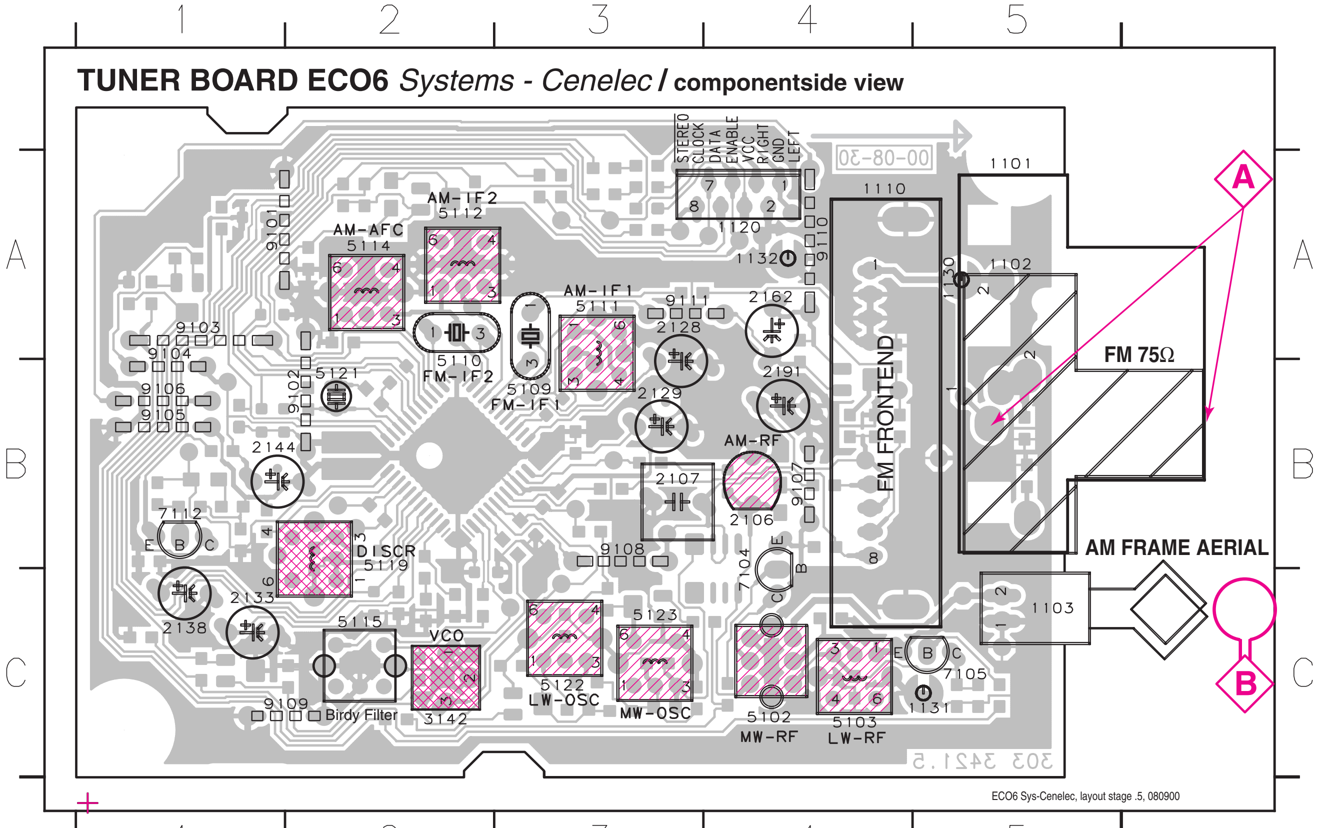
EVM

...V FM mode stereo
...V MW mode
...V LW mode
voltages measured while set is tuned to a strong transmitter

Signal path
- FM
- AM
- MPX (Audio Frequency)
- AF - left/right

1101 B5	1110 B4	1131 C5	2107 B3	2133 C1	2162 A4	5102 C4	5110 A2	5114 A2	5121 B2	7104 C4	9101 A2	9104 B1	9107 B4	9110 A4
1102 B5	1120 A4	1132 A4	2128 A3	2138 B1	2191 B4	5103 C4	5111 A3	5115 C2	5122 C3	7105 C5	9102 B2	9105 B1	9108 B3	9111 A3
1103 C5	1130 A5	2106 B4	2129 B3	2144 B1	3142 C2	5109 B3	5112 A2	5119 B2	5123 C3	7112 B1	9103 A1	9106 B1	9109 C2	

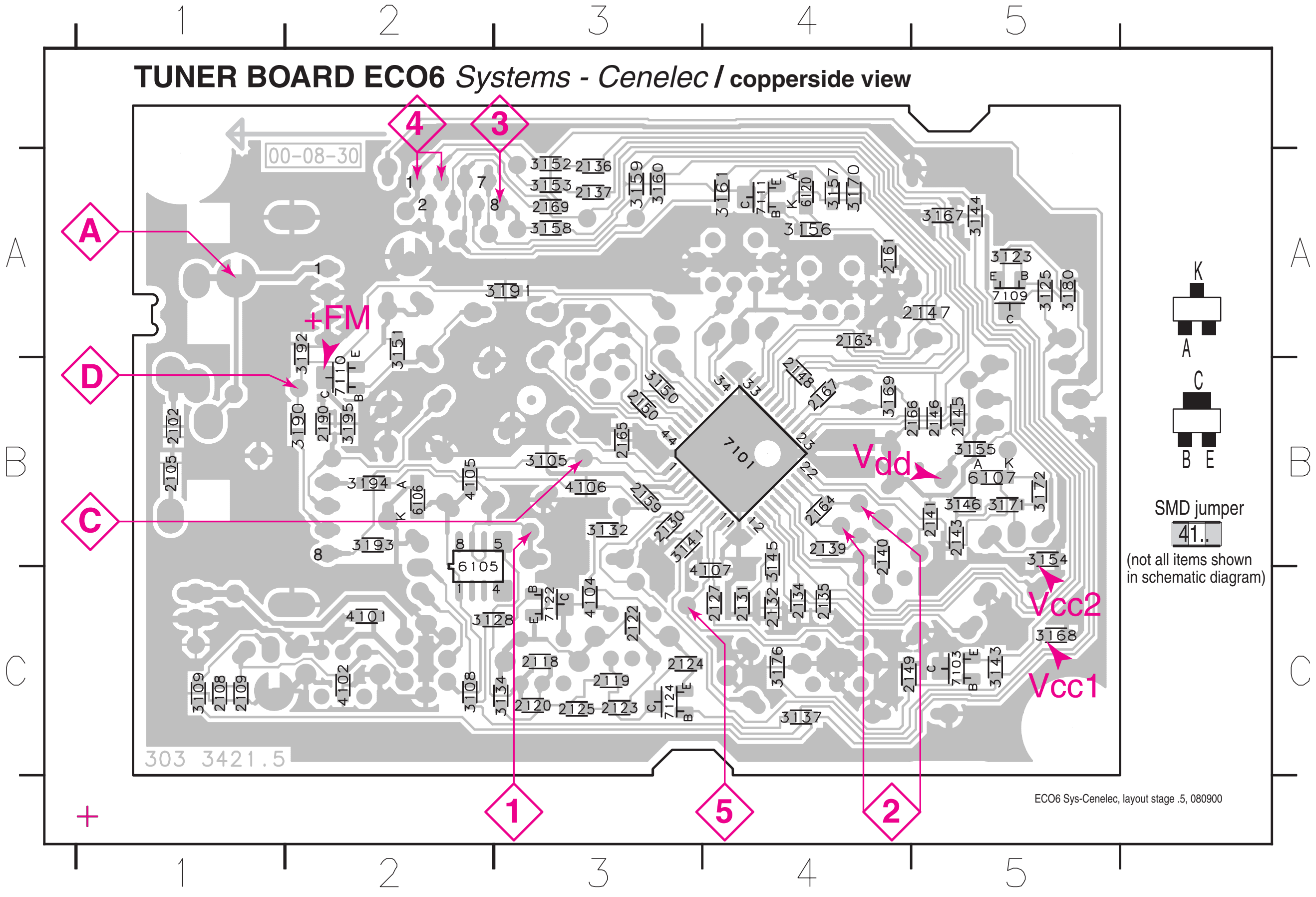
TUNER BOARD ECO6 *Systems - Cenelec* / componentside view


1
2
3
4
5
A
B
C
AM-IF2 5112
AM-AFC 5114
AM-IF1 5111
5110 FM-IF2
5109 FM-IF1
9101
9103
9104
9106
9105
9102
5121
2144
7112
E B C
2133
2138
9109
Birdy Filter
3142
VCO
5115
DISCR 5119
2128
2129
2162
2191
2107
2106
AM-RF
9108
7104
9107
5123
5122 LW-OSC
MW-OSC
5102 MW-RF
5103 LW-RF
7105
1131
1132
1120
1110
FM FRONTEND
1101
1102
1130
FM 75Ω
AM FRAME AERIAL
1103
STEREO CLOCK DATA ENABLE VCC RIGHT GND LEFT
00-08-30
303 3421.5

ECO6 Sys-Cenelec, layout stage .5, 080900

2102 B1	2120 C3	2130 B3	2137 A3	2146 B5	2161 A4	2169 A3	3125 A5	3143 C5	3152 A3	3158 A3	3169 B4	3190 B2	4101 C2	6105 B2	7109 A5
2105 B1	2122 C3	2131 C4	2139 B4	2147 A5	2163 A4	2190 B2	3128 C2	3144 A5	3153 A3	3159 A3	3170 A4	3191 A3	4102 C2	6106 B2	7110 B2
2108 C1	2123 C3	2132 C4	2140 B4	2148 B4	2164 B4	3105 B3	3132 B3	3145 C4	3154 B5	3160 A3	3171 B5	3192 A2	4104 C3	6107 B5	7111 A4
2109 C1	2124 C3	2134 C4	2141 B5	2149 C4	2165 B3	3108 C2	3134 C3	3146 B5	3155 B5	3161 A4	3172 B5	3193 B2	4105 B2	6120 A4	7122 C3
2118 C3	2125 C3	2135 C5	2143 B5	2150 B3	2166 B5	3109 C1	3137 C4	3150 B3	3156 A4	3167 A5	3176 C4	3194 B2	4106 B3	7101 B4	7124 C3
2119 C3	2127 C4	2136 A3	2145 B5	2159 B3	2167 B4	3123 A5	3141 B3	3151 A2	3157 A4	3168 C5	3180 A5	3195 B2	4107 C4	7103 C5	

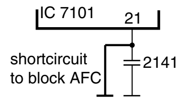
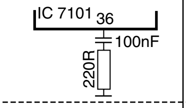
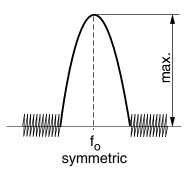
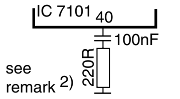
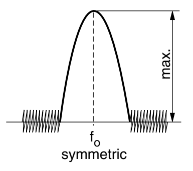
TUNER BOARD ECO6 *Systems - Cenelec* / copperside view


1
2
3
4
5
A
B
C
A
D
C
+FM
Vdd
Vcc2
Vcc1
4
3
1
5
2
7101
6105
00-08-30
303 3421.5
K
A
C
B E
SMD jumper
41..
(not all items shown in schematic diagram)

ECO6 Sys-Cenelec, layout stage .5, 080900

These assembly drawings show a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

TUNER ADJUSTMENT TABLE (ECO6 Cenelec FM/MW - and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (50kHz grid)			108MHz	check	1	8V ±1.2V
			87.5MHz	check		1.6V ±0.5V
MW 531 - 1602kHz (9kHz grid)			1602kHz	5123		8V ±0.2V 3-band 6.9V ±0.2V 2-band
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz (3kHz grid)			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
FM - IF						
FM	10.7MHz, 45mV continuous wave	D	 IC 7101 21 shortcircuit to block AFC 2141	5119	2	0mV ±3mV
FM - VCO						
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz 1)
FM RF (channel separation)	Note: The FM-frontend unit has already been adjusted by the factory and needs therefore no further adjustments for service purposes.					
FM	98MHz, 1mV 90% Left + 9% pilot mod=1kHz	A	98MHz	IF coil inside FM frontend 1110	4	right channel min.
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	C Δf = ±10kHz V_{RF} = 0.5mV (as low as possible)	 IC 7101 36 100nF 220R	5111	5	 max. f_o symmetric
			 IC 7101 40 100nF 220R see remark 2)	5112		
AM AFC **MW**		C continuous wave V_{RF} = 2mV		5114	2	0mV ±2mV
AM RF 3)						
MW	1494kHz	B Δf = ±30kHz V_{RF} as low as possible	1494kHz	2106	5	 max. f_o symmetric
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		

ECO6 Sys Cenelec, 190599

Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

1) If sensitivity of frequency counter is too low adjust to max. channel separation
(input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

2) RC network serves for damping the IF-filter while adjusting the other one.

3) For AM RF adjustments the original frame antenna has to be used!
MW has to be aligned before LW.

↕ Repeat

Electrical Partslist ***ECO6*** *SYSTEMS-CENELEC*

MISCELLANEOUS

1101	2422 015 19376	SOCKET CLICKFIT 2P	USA only
1102	4822 267 10283	SOCKET COAX, IEC 75Ω	not USA
1103	4822 265 31184	JST CONNECTOR, 2 POLE	
1110	2422 542 90071	FM FRONTEND	
1120	4822 265 11515	FFC SOCKET, 8P	

CAPACITORS

2102 ©	4822 126 13838	100nF	10%	50V	not USA
2105 ©	4822 126 13838	100nF	10%	50V	USA only
2106	2020 800 00204	TRIMCAP. 4,2 - 20pF, N750			LW only
2106	2020 800 00191	TRIMCAP. 3 - 11pF, N450			FM/AM only
2107	4822 121 51319	1µF	20%	50V	
2108 ©	5322 122 32531	100pF	5%	50V	LW only
2109 ©	5322 122 32448	10pF	5%	50V	LW only
2120 ©	4822 126 13689	18pF	1%	63V	FM/AM only
2120 ©	5322 122 32658	22pF	5%	50V	LW only
2122 ©	4822 122 33891	3,3nF	10%	63V	LW only
2123 ©	2020 552 93494	390pF	1%	50V	LW only
2124 ©	4822 122 33177	10nF	20%	50V	FM/AM only
2125 ©	2020 552 96199	560pF	1%	50V	
2127 ©	4822 126 14076	220nF	20%	25V	
2128	4822 124 40248	10µF	20%	63V	
2129	4822 124 41584	100µF	20%	10V	
2130 ©	5322 122 32654	22nF	10%	63V	
2131 ©	4822 126 13482	470nF	20%	16V	
2132 ©	4822 126 13482	470nF	20%	16V	
2133	4822 124 21913	1µF	20%	63V	
2134 ©	4822 122 33893	18nF	5%	63V	not USA
2134 ©	5322 122 32654	22nF	10%	63V	USA only
2135 ©	4822 122 33893	18nF	5%	63V	not USA
2135 ©	5322 122 32654	22nF	10%	63V	USA only
2136 ©	4822 126 14076	220nF	20%	25V	
2137 ©	4822 126 14076	220nF	20%	25V	
2138	4822 124 22652	2,2µF	20%	50V	
2139 ©	4822 126 14236	15pF	5%	50V	
2140 ©	4822 126 13695	82pF	1%	63V	
2141 ©	4822 126 13838	100nF	10%	50V	
2143 ©	4822 126 14076	220nF	20%	25V	
2144	4822 124 21913	1µF	20%	63V	
2145 ©	4822 122 33575	220pF	5%	50V	
2146 ©	4822 122 33575	220pF	5%	50V	
2147 ©	4822 122 33575	220pF	5%	50V	
2148 ©	4822 122 33127	2,2nF	10%	63V	
2149 ©	5322 122 32659	33pF	5%	50V	RDS only
2150 ©	4822 126 13838	100nF	10%	50V	
2159 ©	5322 122 32659	33pF	5%	50V	
2162	4822 124 81151	22µF	20%	50V	
2163 ©	4822 126 13838	100nF	10%	50V	LW only
2164 ©	4822 126 13482	470nF	20%	16V	
2165 ©	4822 126 13838	100nF	10%	50V	
2166 ©	5322 122 31647	1nF	10%	63V	
2167 ©	4822 122 33926	12pF	5%	50V	
2169 ©	4822 122 33127	2,2nF	10%	63V	RDS only
2190 ©	4822 126 13838	100nF	10%	50V	
2191	4822 124 40178	100µF	20%	10V	

RESISTORS

3105 ©	4822 117 11503	220Ω	5%	0,1W	
3108 ©	4822 117 11449	2,2kΩ	1%	0,1W	LW only
3109 ©	4822 051 20472	4,7kΩ	5%	0,1W	LW only
3123 ©	4822 051 20472	4,7kΩ	5%	0,1W	LW only
3125 ©	4822 117 10833	10kΩ	1%	0,1W	LW only
3128 ©	4822 117 11449	2,2kΩ	1%	0,1W	LW only
3132©	4822 051 20479	47Ω	5%	0,1W	
3134 ©	4822 051 20223	22kΩ	5%	0,1W	
3137 ©	4822 051 20223	22kΩ	5%	0,1W	LW only
3141 ©	4822 117 11148	56kΩ	1%	0,1W	
3142	4822 100 12159	TRIMPOT. 100kΩ			
3143 ©	4822 051 20223	22kΩ	5%	0,1W	RDS only
3144 ©	4822 051 10102	1kΩ	2%	0,25W	RDS only
3145 ©	4822 117 11449	2,2kΩ	1%	0,1W	
3146 ©	4822 051 20229	22Ω	5%	0,1W	
3150 ©	4822 117 10833	10kΩ	1%	0,1W	
3151 ©	4822 051 20683	68kΩ	5%	0,1W	
3152 ©	4822 051 20471	470Ω	5%	0,1W	
3153 ©	4822 051 20471	470Ω	5%	0,1W	
3154 ©	4822 117 13577	330Ω	1%	0,1W	
3155 ©	4822 117 10353	150Ω	5%	0,1W	
3156 ©	4822 117 10837	100kΩ	1%	0,1W	
3157 ©	4822 117 10837	100kΩ	1%	0,1W	
3158 ©	4822 051 20471	470Ω	5%	0,1W	
3159 ©	4822 051 20471	470Ω	5%	0,1W	
3160 ©	4822 051 20471	470Ω	5%	0,1W	
3161 ©	4822 051 20223	22kΩ	5%	0,1W	
3167 ©	4822 051 20121	120Ω	5%	0,1W	
3168 ©	4822 051 20121	120Ω	5%	0,1W	
3169 ©	4822 051 20154	150kΩ	5%	0,1W	
3170 ©	4822 117 10837	100kΩ	1%	0,1W	
3171 ©	4822 117 10834	47kΩ	1%	0,1W	
3172 ©	4822 051 20562	5,6kΩ	5%	0,1W	
3176 ©	4822 051 20333	33kΩ	5%	0,1W	RDS only
3180 ©	4822 117 10833	10kΩ	1%	0,1W	LW only
3190 ©	4822 051 20121	120Ω	5%	0,1W	
3191 ©	4822 051 20121	120Ω	5%	0,1W	
3192 ©	4822 117 13577	330Ω	1%	0,1W	
3193 ©	4822 117 13577	330Ω	1%	0,1W	
3194 ©	4822 117 11449	2,2kΩ	1%	0,1W	
3195 ©	4822 051 20101	100Ω	5%	0,1W	
4101 ©	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4102 ©	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4104 ©	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4105 ©	4822 051 20008	CHIP JUMPER 0805			
4106 ©	4822 051 20008	CHIP JUMPER 0805			
4107 ©	4822 051 20008	CHIP JUMPER 0805			

COILS

5102	4822 157 71634	RF-COIL MW	
5103	2422 549 44107	RF-COIL LW	LW only
5109	4822 157 71639	FM-IF FILTER 10,7MHz	
5110	4822 242 70665	FM-IF FILTER 10,7MHz	
5111	2422 549 44023	AM-IF FILTER 450kHz	
5112	4822 157 70302	AM-IF FILTER 450kHz	
5114	4822 157 70302	AM-IF FILTER 450kHz	
5115	4822 157 71636	ANTI BIRDY FILTER	
5119	4822 157 11443	DISCRIMINATOR COIL	
5121	4822 242 10261	QUARTZ 75kHz	
5122	2422 549 44108	RF-COIL, LW-OSCILLATOR	LW only
5123	2422 549 44108	RF-COIL, MW-OSCILLATOR	

DIODES

6105 ©	4822 130 83075	HN1V02H
6106 ©	4822 130 83757	BAS216
6107 ©	9340 386 90115	BZX284-C11
6120 ©	4822 130 83757	BAS216

TRANSISTORS

7103 ©	5322 130 42756	BC857C	RDS only
7104	9322 003 64676	TBC337-40	LW only
7105	9322 003 64676	TBC337-40	LW only
7109 ©	4822 130 60373	BC856B	LW only
7110 ©	4822 130 60373	BC856B	
7111 ©	5322 130 42755	BC847C	
7112	4822 130 44503	BC547C	
7122 ©	5322 130 42755	BC847C	LW only
7124 ©	5322 130 42755	BC847C	LW only

INTEGRATED CIRCUITS

7101	4822 209 90315	TEA5762H/V1, RADIO IC

ETF7 TAPE MODULE

(Non-Dolby Version)

TABLE OF CONTENTS

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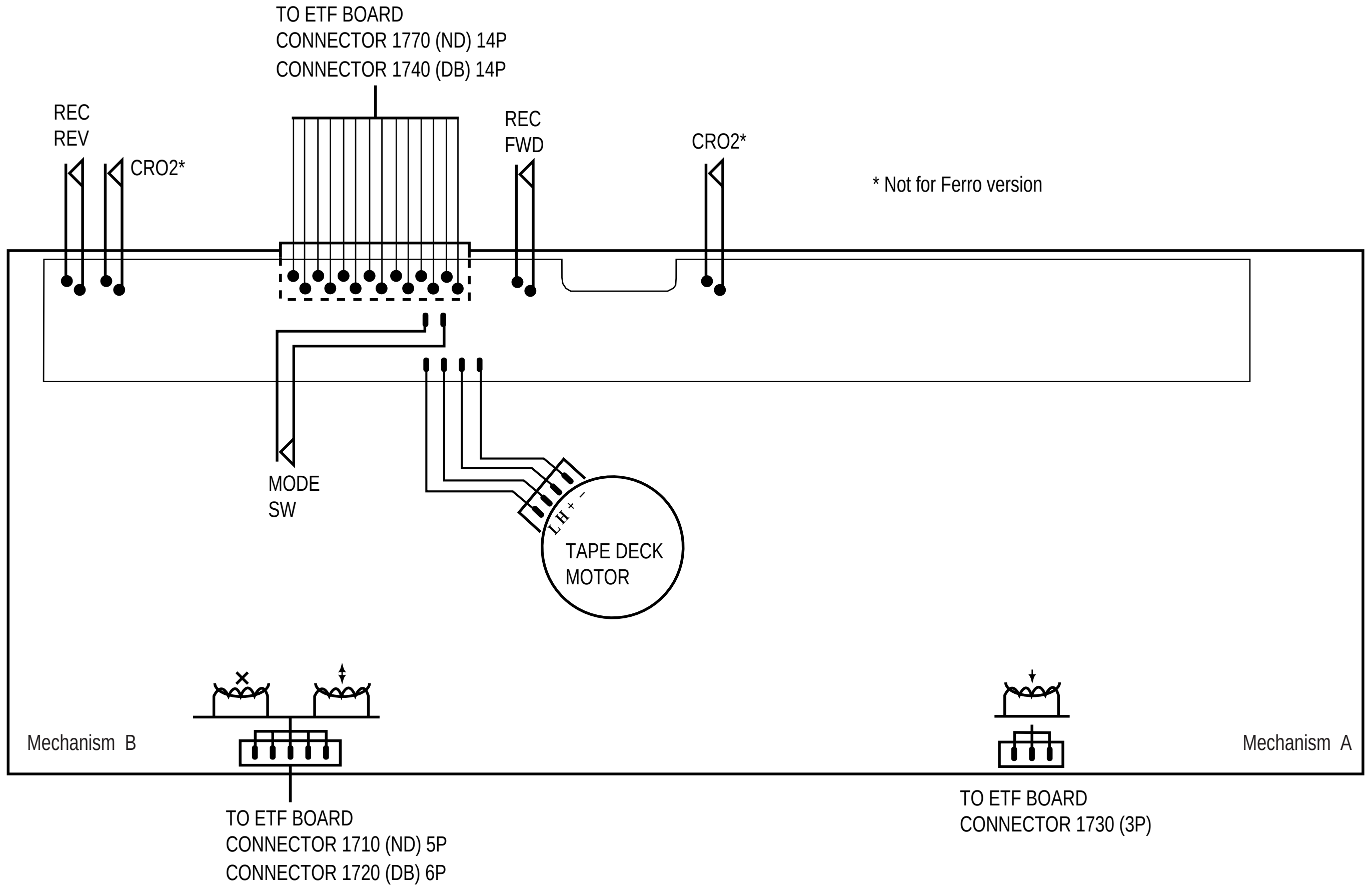
Tapedeck wiring (Double deck)

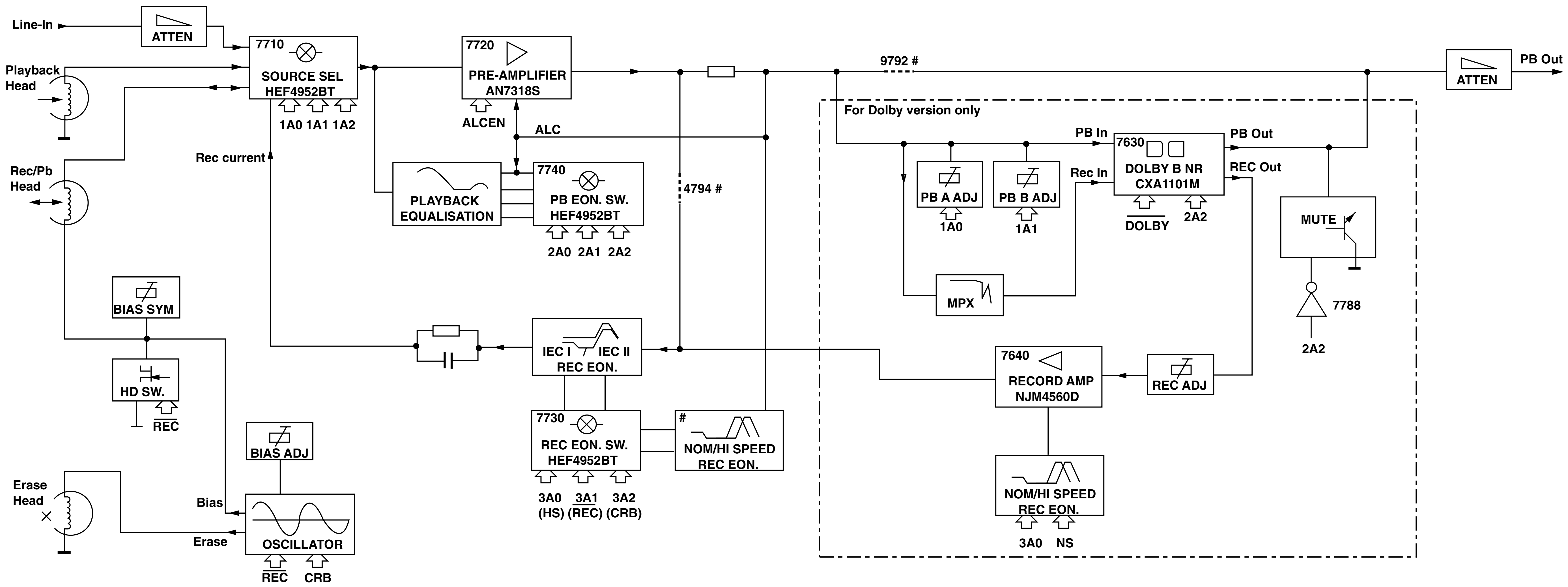

TO ETF BOARD
CONNECTOR 1770 (ND) 14P
CONNECTOR 1740 (DB) 14P
REC
REV
CRO2*
REC
FWD
CRO2*
* Not for Ferro version
MODE
SW
TAPE DECK
MOTOR
L H + -
Mechanism B
Mechanism A
TO ETF BOARD
CONNECTOR 1710 (ND) 5P
CONNECTOR 1720 (DB) 6P
TO ETF BOARD
CONNECTOR 1730 (3P)

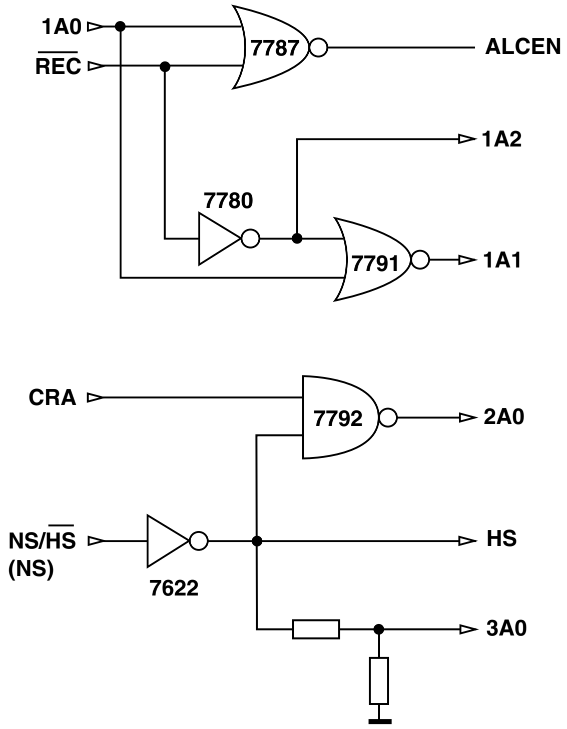
Variations table for Analog Circuit

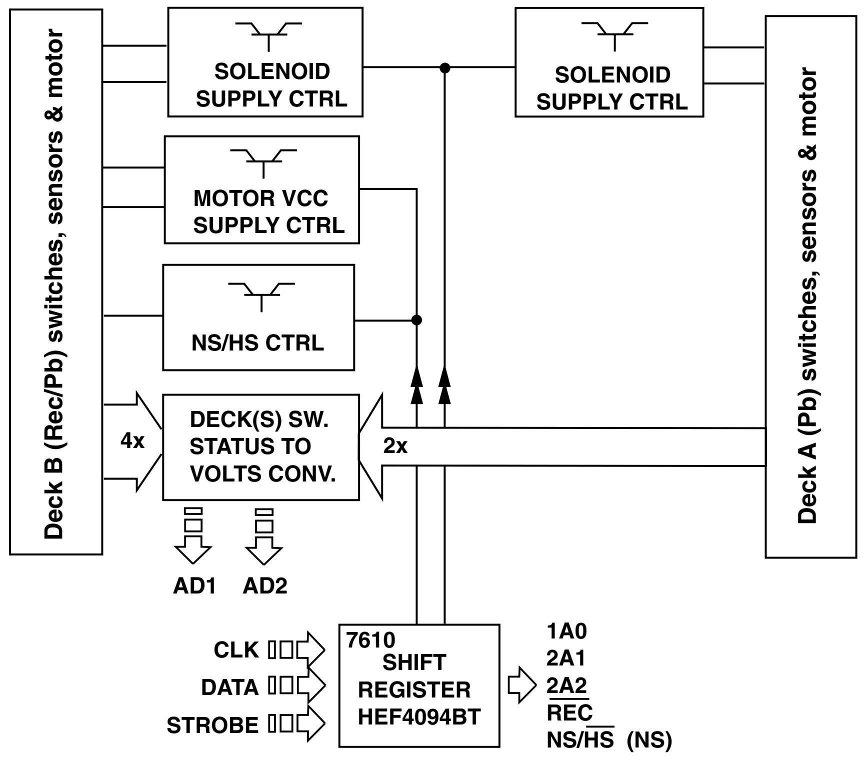
	Autoreverse ND/DD/FR	Non-autoreverse ND/DD/FF	
	Chrome/Ferro	Chrome/Ferro	Ferro
2624	-	-	100nF
2701 , 2702	150pF	270pF	270pF
2703 , 2704	100pF	220pF	220pF
2717 , 2718	10nF	15nF	15nF
2721 , 2722	6,8nF	6,8nF	-
2727 , 2728	470pF	1nF	1nF
3616	10k	1k	1k
3618	6k8	-	-
3620	10k trimmer	-	-
3622	-	10k trimmer	10k trimmer
3672	4k7	-	-
3676	47k	-	-
3687	220R	220R	-
3688	680R	-	-
3723 , 3724	15k	18k	18k
3725 , 3726	10R	10R	-
3727 , 3728	5k6	6k8	6k8
3729 , 3730	3k3	4k7	4k7
3743 , 3744	1k5	2k2	2k2
3745 , 3746	3k3	5k6	5k6
3754 , 3755	1M	47R	47R

	Autoreverse ND/DD/FR	Non-autoreverse ND/DD/FF	
	Chrome/Ferro	Chrome/Ferro	Ferro
3769	12k	8k2	8k2
3772	6k8	5k6	5k6
4785	-	-	0R jumper
3774	15k	8k2	8k2
6614	1N4148	-	-
7616	BC857B	-	-
7622	BC847B	-	-

BLOCK DIAGRAM


Line-In
ATTEN
Playback Head
Rec/Pb Head
Erase Head
7710 SOURCE SEL HEF4952BT
1A0 1A1 1A2
7720 PRE-AMPLIFIER AN7318S
ALCEN
ALC
Rec current
PLAYBACK EQUALISATION
7740 PB EON. SW. HEF4952BT
2A0 2A1 2A2
4794 #
9792 #
ATTEN
PB Out
For Dolby version only
PB In
7630 DOLBY B NR CXA1101M
PB Out
REC Out
Rec In
PB A ADJ
1A0
PB B ADJ
1A1
DOLBY
2A2
MUTE
7788
2A2
MPX
BIAS SYM
HD SW.
REC
IEC I IEC II REC EON.
7640 RECORD AMP NJM4560D
REC ADJ
7730 REC EON. SW. HEF4952BT
3A0 3A1 3A2
(HS) (REC) (CRB)
# NOM/HI SPEED REC EON.
NOM/HI SPEED REC EON.
3A0 NS
BIAS ADJ
Bias
Erase
OSCILLATOR
REC CRB


1A0
REC
7787
ALCEN
1A2
7780
7791
1A1
CRA
7792
2A0
NS/HS (NS)
7622
HS
3A0


Deck B (Rec/Pb) switches, sensors & motor
SOLENOID SUPPLY CTRL
SOLENOID SUPPLY CTRL
Deck A (Pb) switches, sensors & motor
MOTOR VCC SUPPLY CTRL
NS/HS CTRL
4x
DECK(S) SW. STATUS TO VOLTS CONV.
2x
AD1 AD2
CLK
DATA
STROBE
7610 SHIFT REGISTER HEF4094BT
1A0
2A1
2A2
REC
NS/HS (NS)

NOTE: # For Non-dolby version only
Only 1 channel is presented.

▯▯⇨ MicroProcessor Control / Communication lines

⇨ Direct / Indirect Control lines from Shift Registers

Brief introduction

General

1. Playback Mode
   Signal from the playback head Deck A or Deck B is selected and fed through by the Mode Selector IC7710 (HEF4952BT). The signal is amplified by amplifier IC7720 (AN7323S) before feeding to the IC7740 (HEF4952BT) and out to the AF Board via connector 1701.

2. Recording Mode
   Recording Signal is selected and fed through by the Mode Selector IC7710 (HEF4952BT) which is then amplified by the amplifier IC7720 (AN7323S). The amplified output signal will pass through IC7730 (HEF4952BT) for record equalization and back to IC7710 (HEF4952BT) before registered into the Rec/PB Head of Deck B.

3. Dubbing Mode
   In Dubbing mode, signal from the playback head Deck A is selected and fed through by the Mode Selector IC7710 (HEF4952BT) which is then equalised for playback mode by the amplifier IC7720 (AN7323S) so that a flat response is obtained after the pre-amp. The equalised signal will then follow the same path as in the Recording mode.

4. Mode Selector
   The Mode Selector IC7710 (HEF4952BT) caters for 4 inputs signal, namely Playback Signal from Deck A, Playback Signal from Deck B, Recording Signal and Dubbing Signal.

5. Amplifier PB/REC
   Amplifier IC7720 (AN7323S) is for the purpose of amplifying the Playback and Recording signal from the Mode Selector.

6. Automatic Level Control (ALC)
   ALC circuit consists of resistors (3760, 3765, 3766, 3767), capacitors (2762 , 2763) and control by transistor 7787 (BC847B). ALC limits the amplifier output to a constant value when input signal becomes too large, thus limiting recording current to below saturation level, to prevent recording distortion.

7. Muting Circuit (For Non-Dolby version only)
   Switch S4 of the IC7740 (HEF4952BT) is for the purpose of muting the output during Recording mode. During Recording mode, S4 is closed and shorted to the ground.

8. IC7740 (HEF4952BT)
   The function of the IC7740 (HEF4952BT) is to change time constant between 120us Ferro (IEC I) and 70us Chrome (IEC II) during playback mode. It will automatically determined whether the tape type is 120us Ferro (IEC I) or 70us Chrome (IEC II). This IC will switch to Flat Gain during the Recording mode.

9. IC7730 (HEF4952BT)
   The function of the IC7730 (HEF4952BT) is to change gain and time constant according to tape type and recording speed to boost recording current at higher frequency during recording to compensate for head loss. It will automatically determined whether the tape type is 120us Ferro (IEC I) or 70us Chrome (IEC II).

10. Bias Level
    Bias Level making use of the Variable resistor (3773) for adjusting the optimal level of the bias current for Ferro or Chrome.

11. Bias Symm (For Dolby B NR version only)
    Bias Symm making use of the Variable resistor (3785) to adjust the bias current for the left and the right channel to be equal.

12. PB Switch
    Playback Switch which consists of the FETs 7785 (For Dolby B NR version only) & 7786 (J111) is for the purpose of providing a virtual ground for the Rec/PB Head (Deck B) during Playback mode. During the Playback mode, the FETs are turn on and shorted pin 2 and 4 of connector 1720 to the ground. During Recording mode, the FETs are turn off to allow the oscillator signal to be superposition onto the Recording signal for recording.

13. Motor Speed (For FR versions only)
    During High speed dubbing, a feedback signal from the uP through pin 03 of the IC7610 (HEF4094BT) will trigger the transistors 7622 (BC847B) and 7616 (BC857B) to cause a change in the voltage level between High and Low, thus changing the speed of the motor.

14. IC7610 (HEF4094BT)
    IC7610 (HEF4094BT) is a Shift Register use for issues the logic for cmos switch ICs (HEF4952BT) via 1A0, 2A1 and 2A2. It also issues logic to On/Off SOL_A, SOL_B and MOT. Recording speed is controlled via NS/HS.

Dolby Circuit (For sets with Dolby B NR version only)

15. IC7630 (CXA1551M)
    IC7630 (CXA1551M) in the Dolby circuit is a Dolby Noise Reduction Type B IC for the Playback and Recording signal. Noise Reduction ON/OFF are controlled by $\overline{\text{DOLBY}}$, which is from CLK, direct from uP. After clocking in DATA, CLK is set to HIGH/LOW for NR OFF/ON.

16. 19kHz Filter
    The 19kHz filters 5631 & 5632 (LXD-210) in the Dolby circuit is for the purpose of filtering the 19kHz Pilot Tone (for Tuner signal only) of the Recording signal.

17. Level Adjust
    The Variable resistor 3635, 3636,3641 and 3642 in the Dolby circuit is for adjusting the playback level of the Dolby reference (400Hz , 200nWb/m). Transistor 7631, 7632 are ON to enable adjustment of 3641, 3642 during Playback Deck A. Transistor 7633, 7634 and 3635, 3636 are active for Playback Deck B.

18. Amplifier IC7640 (NJM4560M)
    The Amplifiers 7640A & 7640B (NJM4560M) in the Dolby circuit is for the purpose of amplified the Recording signal.

19. Muting Circuit
    The muting circuit which consists of transistors 7788, 7789 and 7790 (BC847B) is for the purpose of muting the output during Recording mode.

NOTATIONS & ABBREVIATIONS USED IN THIS DOCUMENT

CR	Chrome (IEC type II)
DB	Dolby NR type B
DD	Double Deck
DM	Double Motor
FE	Ferro (IEC type I)
FF	Non-Autoreverse
FR	Autoreverse Deck B
Gnd x	Ground x
HSD	High speed dubbing
ND	Non Dolby
NR	Noise Reduction
NSD	Normal speed dubbing
PB	Playback
REC	Record
S/A	Sub-assy
SD	Single Deck
SM	Single Motor

CONNECTORS ASSIGNMENTS:

CONNECTOR 1701 — INTERCONNECTION TO AF BOARD

○	1	REC-L	Record input left
○	2	REC-R	Record input right
○	3	GND A	AF Ground
○	4	TAPE-L	Playback output left
○	5	+12V	D.C. supply (+12V) for AF electronics
○	6	TAPE-R	Playback output right
○	7	-CMOS	Negative d.c. supply (-9V) for CMOS ICs

CONNECTOR 1703 — INTERCONNECTION TO AF BOARD

○	1	GND M	Motor Ground
○	2	+MOTOR	D.C. supply (+12V) for tape deck motor & solenoid

CONNECTOR 1706 — INTERCONNECTION TO FRONT BOARD

○	1	AD2	Deck sensing switches output voltage / Deck A EOT
○	2	AD1	Deck sensing switches output voltage / Deck B EOT
○	3	+5V	DC supply +5V for ADC network
○	4	GND P	Control & Oscillator Ground
○	5	CLK	HEF4094BT shift register Clock line
○	6	DATA	HEF4094BT shift register Data line
○	7	STROBE	HEF4094BT shift register Strobe line

CONNECTOR 1710 — DECK B HEADS CONNECTON ***(For Non-Dolby version only)***

○	1	B R/P HD L+	R/P Head left channel positive
○	2	GND A	R/P Head return ground
○	3	B R/P HD R+	R/P Head right channel positive
○	4	ERASE HEAD	Erase Head
○	5	GND A	Erase Head ground

CONNECTOR 1720 — DECK B HEADS CONNECTON ***(For Dolby B NR version only)***

○	1	B R/P HD L+	R/P Head left channel positive
○	2	B R/P HD L-	R/P Head left channel negative
○	3	B R/P HD R+	R/P Head right channel positive
○	4	B R/P HD R-	R/P Head right channel negative
○	5	ERASE HEAD	Erase Head
○	6	GND A	Erase Head ground

CONNECTOR 1730 — DECK A HEAD CONNECTIONS ***(For Double Deck versions only)***

○	1	A PB HD L+	Pb Head left channel positive
○	2	GND A	Pb Head return ground shield
○	3	A PB HD R+	Pb Head right channel positive

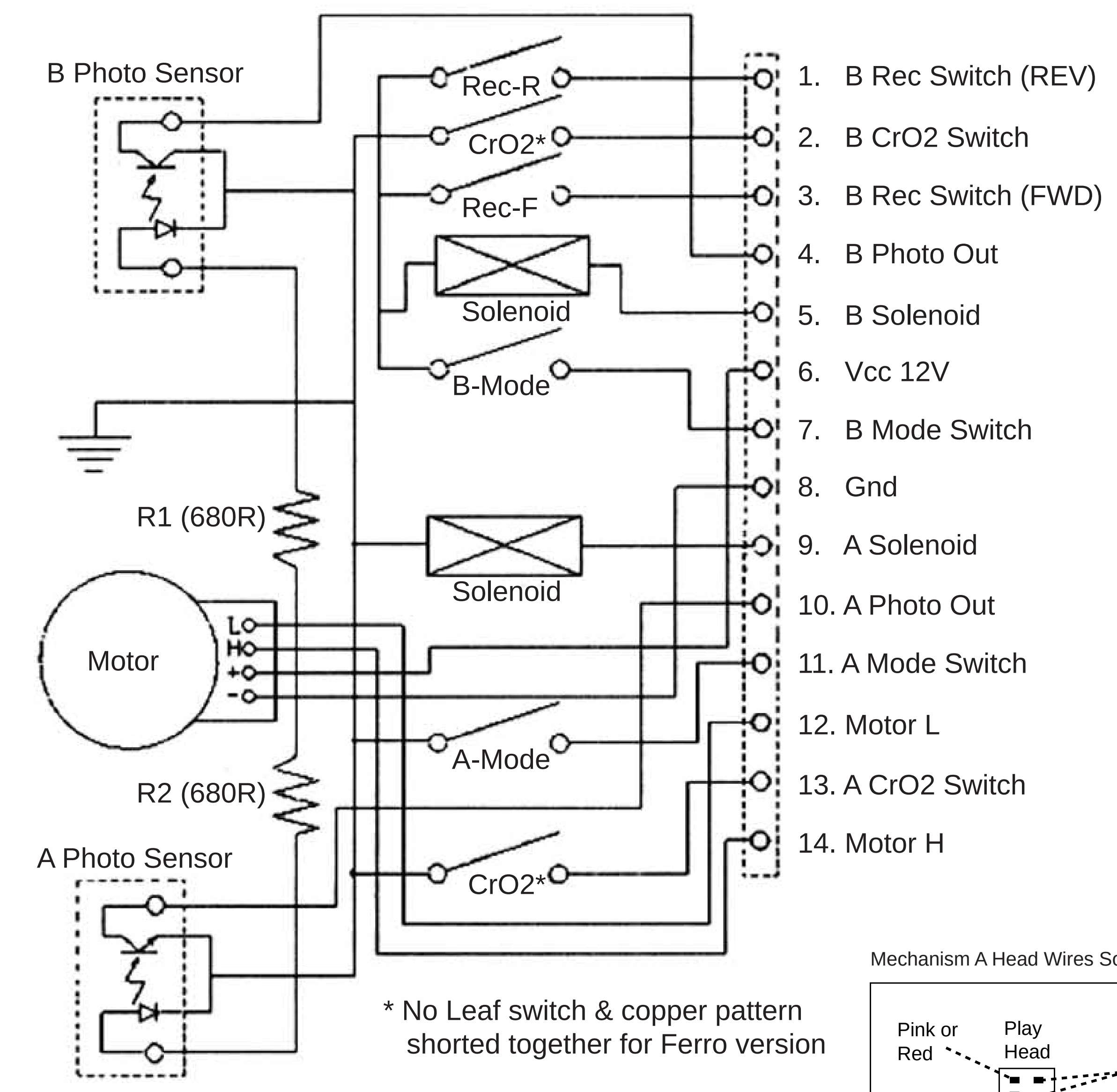
CONNECTOR 1740 — DECK A & B CONTROL INTERFACE ***(For Dolby B NR version only)***

○	1	REC REW	Record tab protection status switch (reverse)	[open=on: close=off]
○	2	CrO2 B	Chrome tape detection switch deck B	[open=Cr: close=Fe]
○	3	REC FWD	Record tab protection status switch (forward)	[open=on: close=off]
○	4	PHOTO B	Photo sensor output (tape movement indication)	
○	5	SOL B	Solenoid supply for deck B	
○	6	Vcc	Deck / Motor supply	
○	7	MODE B	Mode switch (head engagement)	[open=off: close=engaged]
○	8	GND M	Deck / Motor ground	
○	9	SOL A	Solenoid supply for deck A	
○	10	PHOTO A	Photo sensor output (tape movement indication)	
○	11	MODE A	Mode switch (head engagement)	[open=off: close=engaged]
○	12	L	L pin for motor	
○	13	CrO2 A	Chrome tape detection switch deck A	[open=Cr: close=Fe]
○	14	H	H pin for motor	

CONNECTOR 1770 — DECK A & B CONTROL INTERFACE ***(For Non-Dolby version only)***

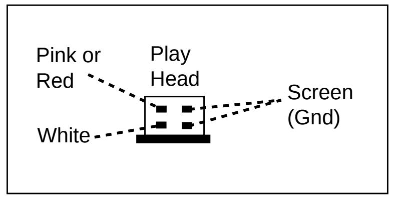
○	1	REC REW	Record tab protection status switch (reverse)	[open=on: close=off]
○	2	CrO2 B	Chrome tape detection switch deck B	[open=Cr: close=Fe]
○	3	REC FWD	Record tab protection status switch (forward)	[open=on: close=off]
○	4	PHOTO B	Photo sensor output (tape movement indication)	
○	5	SOL B	Solenoid supply for deck B	
○	6	Vcc	Deck / Motor supply	
○	7	MODE B	Mode switch (head engagement)	[open=off: close=engaged]
○	8	GND M	Deck / Motor ground	
○	9	SOL A	Solenoid supply for deck A	
○	10	PHOTO A	Photo sensor output (tape movement indication)	
○	11	MODE A	Mode switch (head engagement)	[open=off: close=engaged]
○	12	L	L pin for motor	
○	13	CrO2 A	Chrome tape detection switch deck A	[open=Cr: close=Fe]
○	14	H	H pin for motor	

TAPE MECHANISM ELECTRONICS

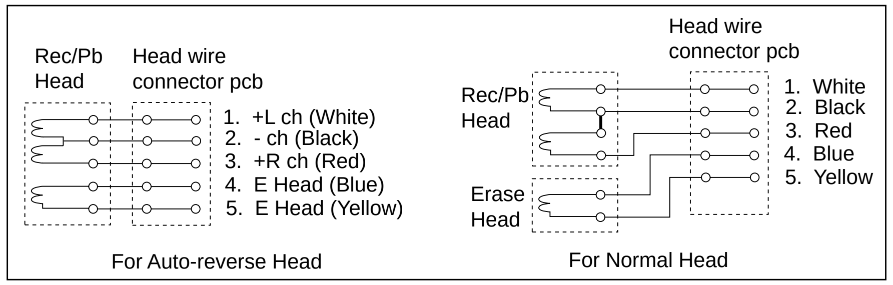

B Photo Sensor
Rec-R
CrO2*
Rec-F
Solenoid
B-Mode
R1 (680R)
Solenoid
Motor
L
H
+
-
A-Mode
R2 (680R)
A Photo Sensor
CrO2*
1. B Rec Switch (REV)
2. B CrO2 Switch
3. B Rec Switch (FWD)
4. B Photo Out
5. B Solenoid
6. Vcc 12V
7. B Mode Switch
8. Gnd
9. A Solenoid
10. A Photo Out
11. A Mode Switch
12. Motor L
13. A CrO2 Switch
14. Motor H

* No Leaf switch & copper pattern shorted together for Ferro version

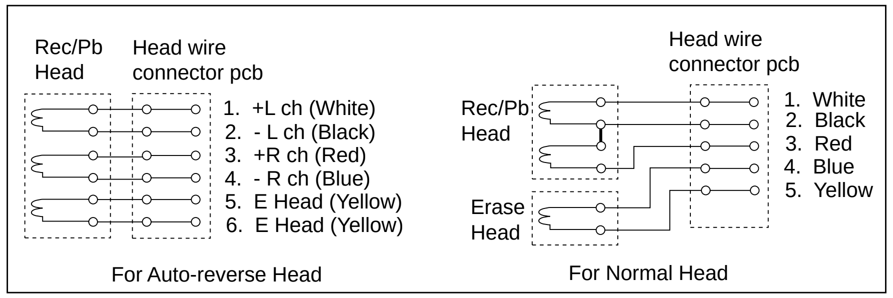
Mechanism A Head Wires Soldering


Pink or Red
Play Head
White
Screen (Gnd)

Mechanism B Head Wires Soldering (Non-Dolby version)


Rec/Pb Head
Head wire connector pcb
1. +L ch (White)
2. - ch (Black)
3. +R ch (Red)
4. E Head (Blue)
5. E Head (Yellow)
For Auto-reverse Head
Head wire connector pcb
Rec/Pb Head
Erase Head
1. White
2. Black
3. Red
4. Blue
5. Yellow
For Normal Head

Mechanism B Head Wires Soldering (Dolby B NR version)


Rec/Pb Head
Head wire connector pcb
1. +L ch (White)
2. - L ch (Black)
3. +R ch (Red)
4. - R ch (Blue)
5. E Head (Yellow)
6. E Head (Yellow)
For Auto-reverse Head
Head wire connector pcb
Rec/Pb Head
Erase Head
1. White
2. Black
3. Red
4. Blue
5. Yellow
For Normal Head

TAPE ADJUSTMENT & CHECK TABLE

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
ADJUST MOTOR SPEED						
NORMAL SPEED	SBC420 3150Hz	PLAY B	1 or 2 LEFT RIGHT	frequency counter	3620	3150Hz – 0.5%
		PLAY A			check	3150Hz -0.8/+1.8%
CHECK WOW & FLUTTER						
DECK A & B	SBC420 3150Hz	PLAY	1 or 2 LEFT RIGHT	W&F-meter	check	†0.4 % DIN
ADJUST AZIMUTH						
DECK A & B	SBC420 10kHz	PLAY FWD	1 or 2 LEFT RIGHT	mV-meter	left hand screw	max. output level & left=right
		PLAY REV #			right hand screw	
CHECK PLAYBACK FREQUENCY RESPONSE						
DECK A & B	SBC420	PLAY	1 or 2 LEFT RIGHT	mV-meter	check	limits see fig.1
ADJUST BIAS CURRENT						
DECK B	SBC419A^	RECORD	5 or 6 LEFT RIGHT	mV-meter	3773	995mV
	SBC420				check	750mV – 1.5dB
CHECK OVERALL FREQUENCY RESPONSE AND DISTORTION						
Inject 3mV signals 100Hz, 250Hz, 1kHz, 10kHz, 12.5kHz via 3 or 4	SBC419A^ or SBC420	RECORD B				
	RECORDED CASSETTE	PLAY B	1 or 2 LEFT RIGHT	mV-meter	check	limits see fig. 2 *
Inject 1kHz 8.85mV via 3 or 4	SBC419A^ or SBC420	RECORD B				
	RECORDED CASSETTE	PLAY B	1 or 2 LEFT RIGHT	THD-meter	check	†3% *

SBC419A^ : 4822 397 30069
SBC420 : 4822 397 30071

# For Auto-reverse version only
* If high frequencies are not within limits, decrease bias and re-measure.
If distortion is too high, increase bias and re-meaure
^ Not applicable for Ferro version

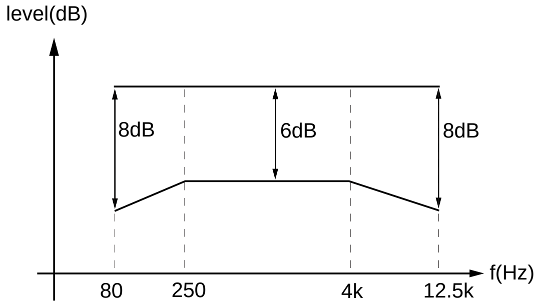


figure. 1

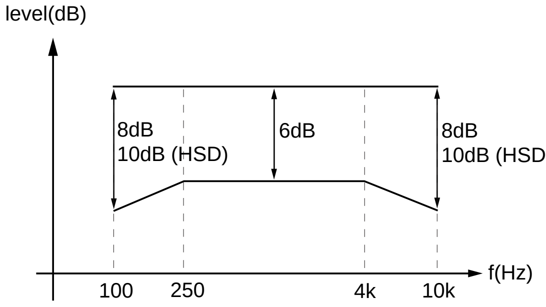
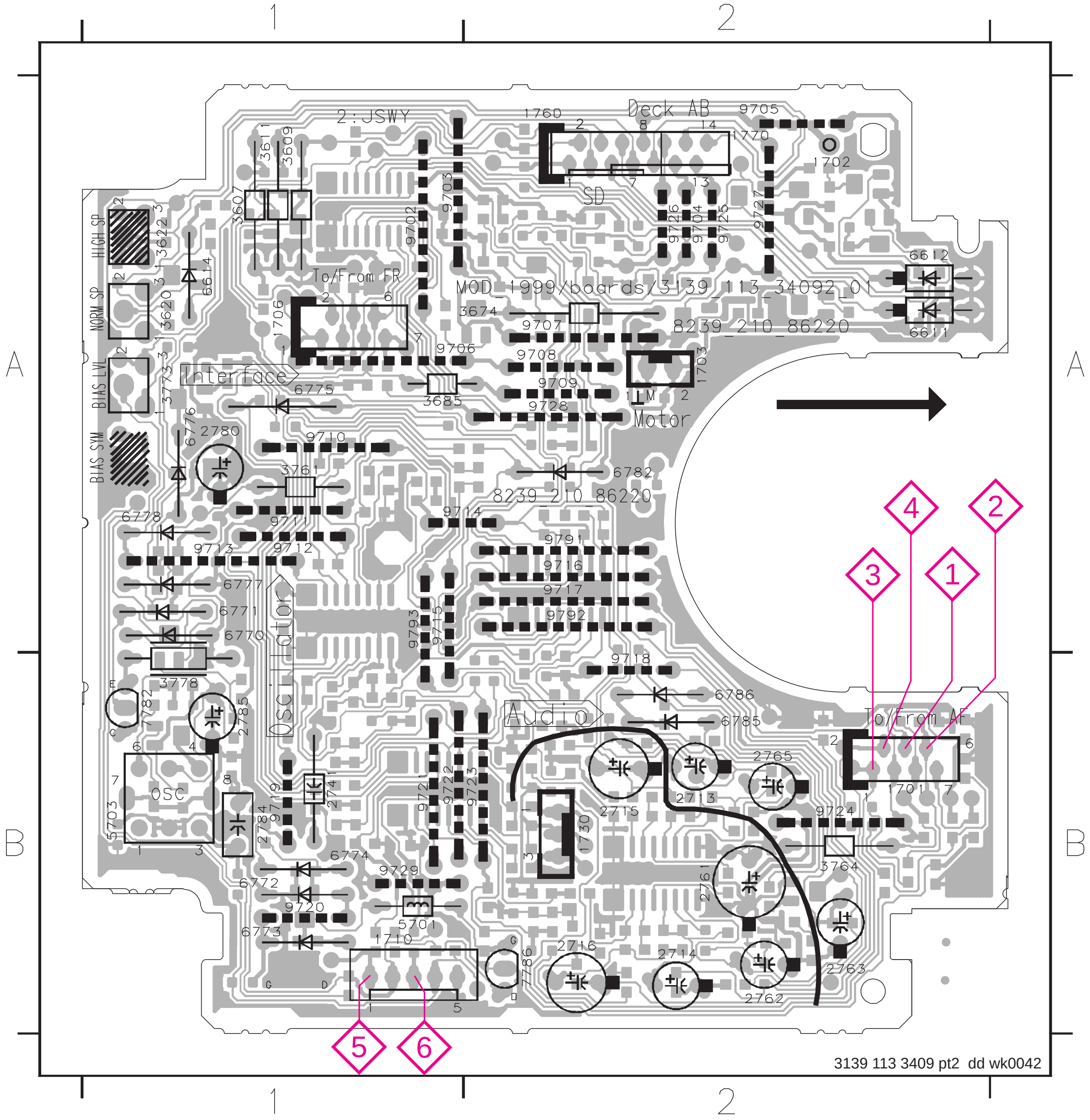


figure. 2

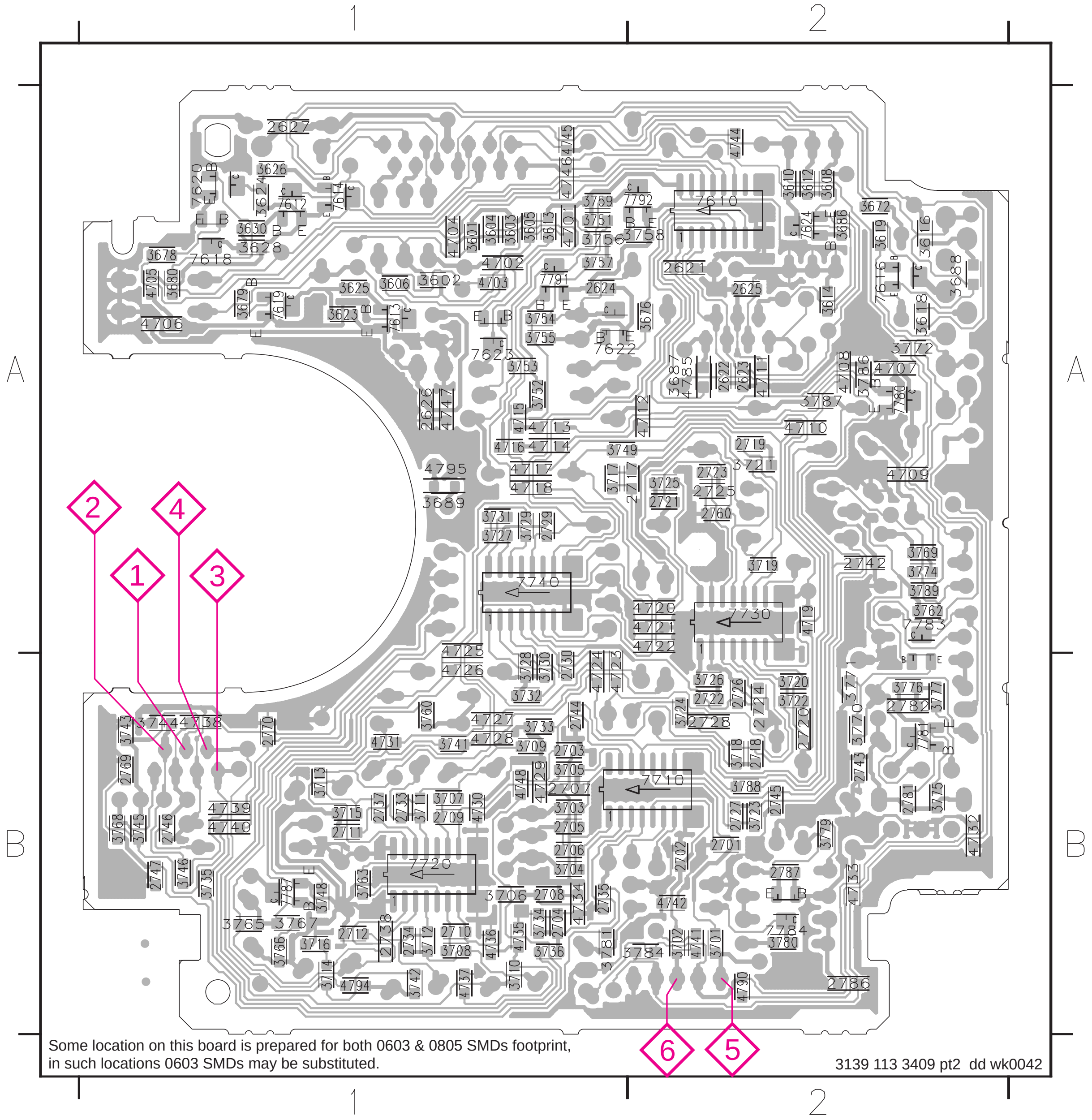
COMPONENT LAYOUT

1701	B2	2714	B2	2784	B1	3761	A1	6770	A1	6782	A2	9706	A1	9715	A1	9724	B2
1702	A2	2715	B2	2785	B1	3764	B2	6771	A1	6785	B2	9707	A2	9716	A2	9725	A2
1703	A2	2716	B2	3607	A1	3773	A1	6772	B1	6786	B2	9708	A2	9717	A2	9726	A2
1706	A1	2741	B1	3609	A1	3778	B1	6773	B1	7782	B1	9709	A2	9718	B2	9727	A2
1710	B1	2761	B2	3611	A1	5701	B1	6774	B1	7786	B2	9710	A1	9719	B1	9728	A2
1730	B2	2762	B2	3620	A1	5703	B1	6775	A1	9702	A1	9711	A1	9720	B1	9729	B1
1760	A2	2763	B2	3622	A1	6611	A2	6776	A1	9703	A1	9712	A1	9721	B1	9791	A2
1770	A2	2765	B2	3674	A2	6612	A2	6777	A1	9704	A2	9713	A1	9722	B1	9792	A2
2713	B2	2780	A1	3685	A1	6614	A1	6778	A1	9705	A2	9714	A1	9723	B2	9793	A1



CHIP LAYOUT

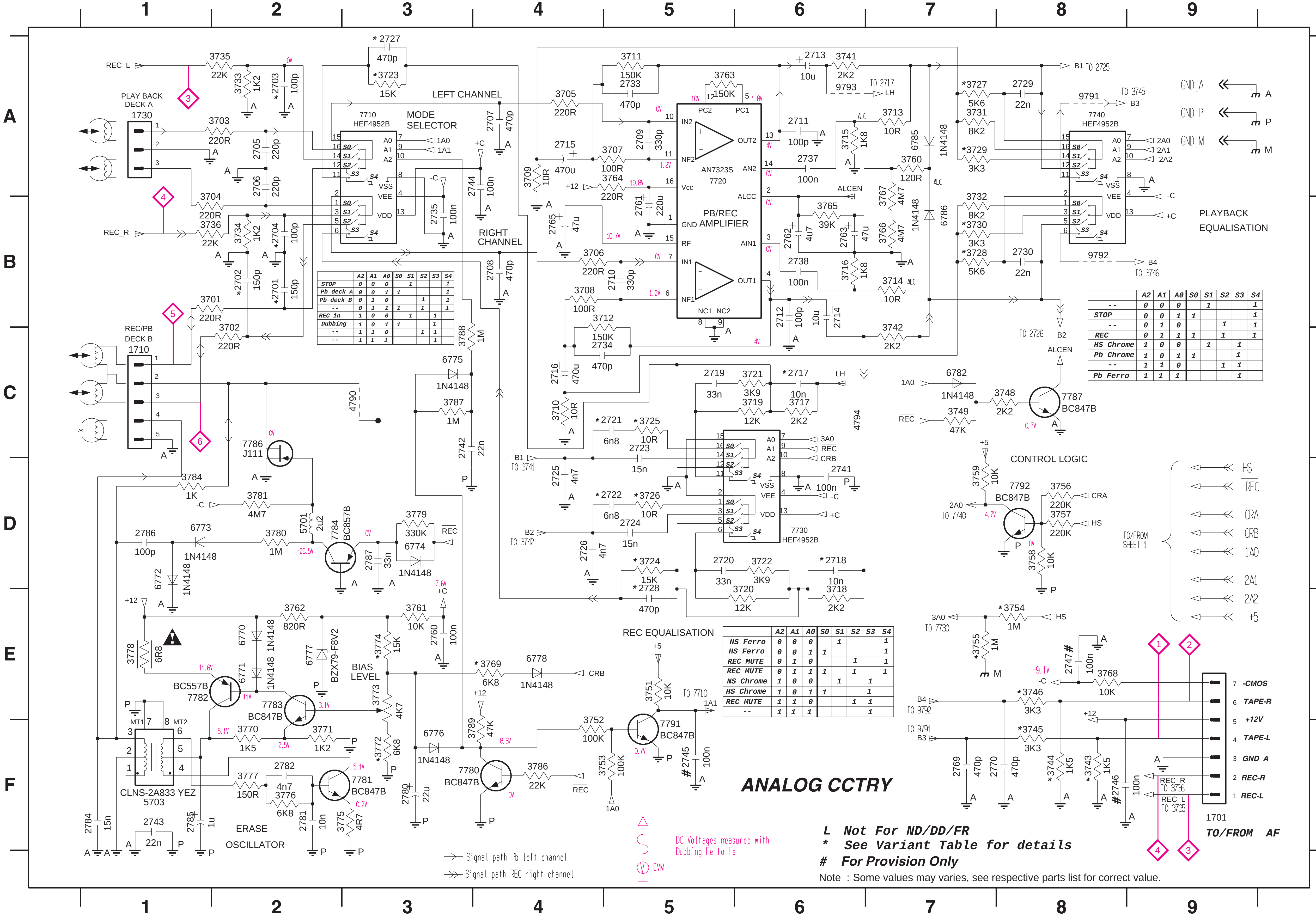
2621	A2	2724	B2	3602	A1	3688	A2	3725	A2	3757	A1	4701	A1	4727	B1	7612	A1
2622	A2	2725	A2	3603	A1	3689	A1	3726	B2	3758	A2	4702	A1	4728	B1	7613	A1
2623	A2	2726	B2	3604	A1	3701	B2	3727	A1	3759	A1	4703	A1	4729	B1	7614	A1
2624	A1	2727	B2	3605	A1	3702	B2	3728	B1	3760	B1	4704	A1	4730	B1	7616	A2
2625	A2	2728	B2	3606	A1	3703	B1	3729	A1	3762	A2	4705	A1	4731	B1	7618	A1
2626	A1	2729	A1	3608	A2	3704	B1	3730	B1	3763	B1	4706	A1	4732	B2	7619	A1
2627	A1	2730	B1	3610	A2	3705	B1	3731	A1	3765	B1	4707	A2	4733	B2	7620	A1
2701	B2	2733	B1	3612	A2	3706	B1	3732	B1	3766	B1	4708	A2	4734	B1	7622	A1
2702	B2	2734	B1	3613	A1	3707	B1	3733	B1	3767	B1	4709	A2	4735	B1	7623	A1
2703	B1	2735	B1	3614	A2	3708	B1	3734	B1	3768	B1	4710	A2	4736	B1	7624	A2
2704	B1	2737	B1	3616	A2	3709	B1	3735	B1	3769	A2	4711	A2	4737	B1	7710	B2
2705	B1	2738	B1	3618	A2	3710	B1	3736	B1	3770	B2	4712	A2	4738	B1	7720	B1
2706	B1	2742	A2	3619	A2	3711	B1	3741	B1	3771	B2	4713	A1	4739	B1	7730	A2
2707	B1	2743	B2	3623	A1	3712	B1	3742	B1	3772	A2	4714	A1	4740	B1	7740	A1
2708	B1	2744	B1	3624	A1	3713	B1	3743	B1	3774	A2	4715	A1	4741	B2	7780	A2
2709	B1	2745	B2	3625	A1	3714	B1	3744	B1	3775	B2	4716	A1	4742	B2	7781	B2
2710	B1	2746	B1	3626	A1	3715	B1	3745	B1	3776	B2	4717	A1	4744	A2	7783	A2
2711	B1	2747	B1	3628	A1	3716	B1	3746	B1	3777	B2	4718	A1	4745	A1	7784	B2
2712	B1	2760	A2	3630	A1	3717	A1	3748	B1	3779	B2	4719	A2	4746	A1	7787	B1
2717	A2	2769	B1	3672	A2	3718	B2	3749	A1	3780	B2	4720	A2	4747	A1	7791	A1
2718	B2	2770	B1	3676	A2	3719	A2	3751	A1	3781	B1	4721	A2	4748	B1	7792	A2
2719	A2	2781	B2	3678	A1	3720	B2	3752	A1	3784	B2	4722	A2	4785	A2		
2720	B2	2782	B2	3679	A1	3721	A2	3753	A1	3786	A2	4723	B1	4790	B2		
2721	A2	2786	B2	3680	A1	3722	B2	3754	A1	3787	A2	4724	B1	4794	B1		
2722	B2	2787	B2	3686	A2	3723	B2	3755	A1	3788	B2	4725	A1	4795	A1		
2723	A2	3601	A1	3687	A2	3724	B2	3756	A1	3789	A2	4726	B1	7610	A2		



Some location on this board is prepared for both 0603 & 0805 SMDs footprint, in such locations 0603 SMDs may be substituted.

ANALOG CIRCUIT

1701 F9
1710 C1
1730 A1
2701 B2
2702 B2
2703 A2
2704 B2
2705 A2
2706 A2
2707 A4
2708 B4
2709 A5
2710 B5
2711 A6
2712 B6
2713 A6
2714 B6
2715 A4
2716 C4
2717 C6
2718 D6
2719 C5
2720 D5
2721 C5
2722 D5
2723 C5
2724 D5
2725 D4
2726 D4
2727 A3
2728 E5
2729 A8
2730 B8
2733 A5
2734 C4
2735 B3
2737 A6
2738 B6
2741 D6
2742 C3
2743 F1
2744 A4
2745 F5
2746 F8
2747 E8
2760 E3
2761 B5
2762 B6
2763 B6
2765 B4
2769 F7
2770 F8
2780 F3
2781 F2
2782 F2
2784 F1
2785 F1
2786 D1
2787 D3
3701 B1
3702 C2
3703 A2
3704 B1
3705 A4
3706 B4
3707 A4
3708 B4
3709 A4
3710 C4
3711 A5
3712 B4
3713 A7
3714 B7
3715 A6
3716 B6
3717 C6
3718 E6
3719 C6
3720 E6
3721 C6
3722 D6
3723 A3
3724 D5
3725 C5
3726 D5
3727 A7
3728 B7
3729 A7
3730 B7
3731 A7
3732 B7
3733 A2
3734 B2
3735 A2
3736 B1
3741 A6
3742 C7
3743 F8
3744 F8
3745 F8
3746 E8
3748 C8
3749 C7
3751 E5
3752 F4
3753 F5
3754 E8
3755 E7
3756 D8
3757 D8
3758 D8
3759 D7
3760 A7
3761 E3
3762 E2
3763 A5
3764 A5
3765 B6
3766 B7
3767 A7
3768 E8
3769 E4
3770 F2
3771 F2
3772 F3
3773 E3
3774 E3
3775 F3
3776 F2
3777 F2
3778 E1
3779 D3
3780 D2
3781 D2
3784 D1
3786 F4
3787 C3
3788 C3
3789 F4
4790 C3
4794 C6
5701 D2
5703 F1
6770 E2
6771 E2
6772 D1
6773 D1
6774 D3
6775 C3
6776 F3
6777 E2
6778 E4
6782 C7
6785 A7
6786 B7
7710 A3
7720 A5
7730 D6
7740 A8
7780 F4
7781 F3
7782 E1
7783 E2
7784 D2
7786 C2
7787 C8
7791 F5
7792 D8
9791 A8
9792 B8
9793 A6



1 2 3 4 5 6 7 8 9
A B C D E F
REC_L
REC_R
PLAY BACK DECK A 1730
REC/PB DECK B 1710
LEFT CHANNEL
MODE SELECTOR
7710 HEF4952B
RIGHT CHANNEL
PB/REC AMPLIFIER
AN7323S 7720
IN2 NF2 Vcc GND RF IN1 NF1 PC2 PC1 OUT2 AN2 ALCC AIN1 OUT1 NC1 NC2
ALCEN
PLAYBACK EQUALISATION
7740 HEF4952B
GND_A GND_P GND_M
CONTROL LOGIC
TO/FROM SHEET 1
HS REC CRA CRB 1A0 2A1 2A2 +5
REC EQUALISATION
7730 HEF4952B
BIAS LEVEL
ERASE OSCILLATOR
CLNS-2A833 YEZ 5703
7782 BC557B
7783 BC847B
7781 BC847B
7780 BC847B
7784 BC857B
7786 J111
7787 BC847B
7791 BC847B
7792 BC847B
BZX79-F8V2
1701 TO/FROM AF
7 -CMOS
6 TAPE-R
5 +12V
4 TAPE-L
3 GND_A
2 REC-R
1 REC-L
ANALOG CCTRY
DC Voltages measured with Dubbing Fe to Fe
EVM
Signal path Pb left channel
Signal path REC right channel

	A2	A1	A0	S0	S1	S2	S3	S4
STOP	0	0	0		1			1
Pb deck A	0	0	1	1				1
Pb deck B	0	1	0			1		1
--	0	1	1	1		1		1
REC in	1	0	0		1		1	
Dubbing	1	0	1	1			1	
--	1	1	0			1	1	
--	1	1	1				1	

	A2	A1	A0	S0	S1	S2	S3	S4
--	0	0	0		1			1
STOP	0	0	1	1				1
--	0	1	0			1		1
REC	0	1	1	1		1		1
HS Chrome	1	0	0		1		1	
Pb Chrome	1	0	1	1			1	
--	1	1	0			1	1	
Pb Ferro	1	1	1				1	

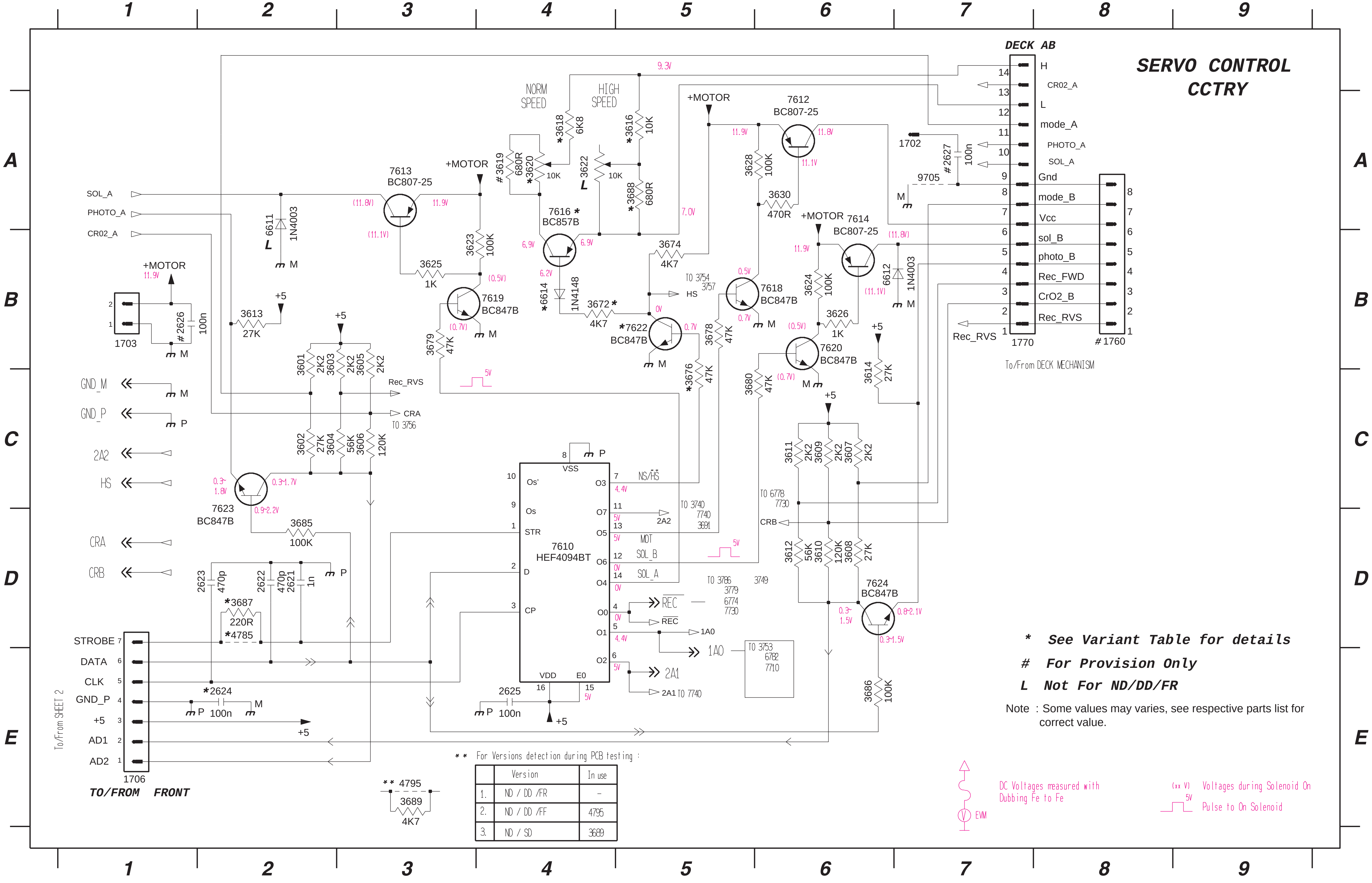
	A2	A1	A0	S0	S1	S2	S3	S4
NS Ferro	0	0	0		1			1
HS Ferro	0	0	1	1				1
REC MUTE	0	1	0			1		1
REC MUTE	0	1	1	1		1		1
NS Chrome	1	0	0		1		1	
HS Chrome	1	0	1	1			1	
REC MUTE	1	1	0			1	1	
--	1	1	1				1	

L Not For ND/DD/FR
* See Variant Table for details
# For Provision Only

Note : Some values may varies, see respective parts list for correct value.

SERVO CONTROL CIRCUIT

1702	A7
1703	B1
1706	E1
1760	B8
1770	B7
2621	D2
2622	D2
2623	D2
2624	E2
2625	E4
2626	B1
2627	A7
3601	B2
3602	C2
3603	B2
3604	C2
3605	B3
3606	C3
3607	C6
3608	D6
3609	C6
3610	D6
3611	C6
3612	D6
3613	B2
3614	C6
3616	A5
3618	A4
3619	A4
3620	A4
3622	A4
3623	B3
3624	B6
3625	B3
3626	B6
3628	A5
3630	A6
3672	B4
3674	B5
3676	C5
3678	B5
3679	B3
3680	C5
3685	D2
3686	E6
3687	D2
3688	A5
3689	E3
4785	D2
4795	E3
6611	A2
6612	B6
6614	B4
7610	D4
7612	A6
7613	A3
7614	A6
7616	A4
7618	B6
7619	B4
7620	B6
7622	B5
7623	D2
7624	D6
9705	A7


1 2 3 4 5 6 7 8 9
A B C D E
SERVO CONTROL CCTRY
DECK AB
H
CR02_A
L
mode_A
PHOTO_A
SOL_A
Gnd
mode_B
Vcc
sol_B
photo_B
Rec_FWD
CrO2_B
Rec_RVS
14 13 12 11 10 9 8 7 6 5 4 3 2 1
1770
# 1760
To/From DECK MECHANISM
1702
# 2627
100n
9705
M
Rec_RVS
NORM SPEED
HIGH SPEED
9.3V
+MOTOR
7612 BC807-25
11.9V 11.8V 11.1V
3618 * 6K8
3616 * 10K
# 3619 680R
* 3620 10K
3622 L 10K
* 3688 680R
3628 100K
3630 470R
7.0V
7616 * BC857B
6.9V 6.9V 6.2V
7613 BC807-25
(11.8V) 11.9V (11.1V)
SOL_A
PHOTO_A
CR02_A
6611 L 1N4003
M
3623 100K
3625 1K
(0.5V)
7619 BC847B
(0.7V)
3679 47K
* 6614 1N4148
3672 * 4K7
3674 4K7
TO 3754 3757
HS
0V
* 7622 BC847B
0.7V
3678 47K
* 3676 47K
7618 BC847B
0.5V 0.7V
+MOTOR 7614 BC807-25
11.9V (11.8V) (11.1V)
3624 100K
6612 1N4003
3626 1K
(0.5V)
7620 BC847B
(0.7V)
3680 47K
+5
3614 27K
+MOTOR 11.9V
1703
# 2626 100n
+5
3613 27K
3601 2K2
3603 2K2
3605 2K2
Rec_RVS
5V
CRA
TO 3756
3602 27K
3604 56K
3606 120K
GND_M
GND_P
2A2
HS
CRA
CRB
0.3~1.8V 0.3~1.7V 0.9~2.2V
7623 BC847B
3685 100K
2623 470p
2622 470p
2621 1n
P
* 3687 220R
* 4785
STROBE 7
DATA 6
CLK 5
GND_P 4
+5 3
AD1 2
AD2 1
1706
To/From SHEET 2
TO/FROM FRONT
* 2624 100n
+5
7610 HEF4094BT
VSS 8
10 Os'
9 Os
1 STR
2 D
3 CP
VDD 16
E0 15
O3 7 NS/HS 4.4V
O7 11
13 5V 2A2
O5 5V MOT
O6 12 SOL_B 0V
O4 14 SOL_A 0V
O0 4 REC
5 0V REC
O1 4.4V 1A0
O2 6 5V 2A1
2A1 TO 7740
TO 3740 7740 3691
TO 3786 3779 6774 7730
3749
TO 3753 6782 7710
2625 100n
P
+5
5V
3611 2K2
3609 2K2
3607 2K2
TO 6778 7730
CRB
3612 56K
3610 120K
3608 27K
7624 BC847B
0.3~1.5V 0.8~2.1V 0.3~1.5V
3686 100K
** 4795
3689 4K7
EVM
DC Voltages measured with Dubbing Fe to Fe
(xx V) Voltages during Solenoid On
5V Pulse to On Solenoid

* See Variant Table for details

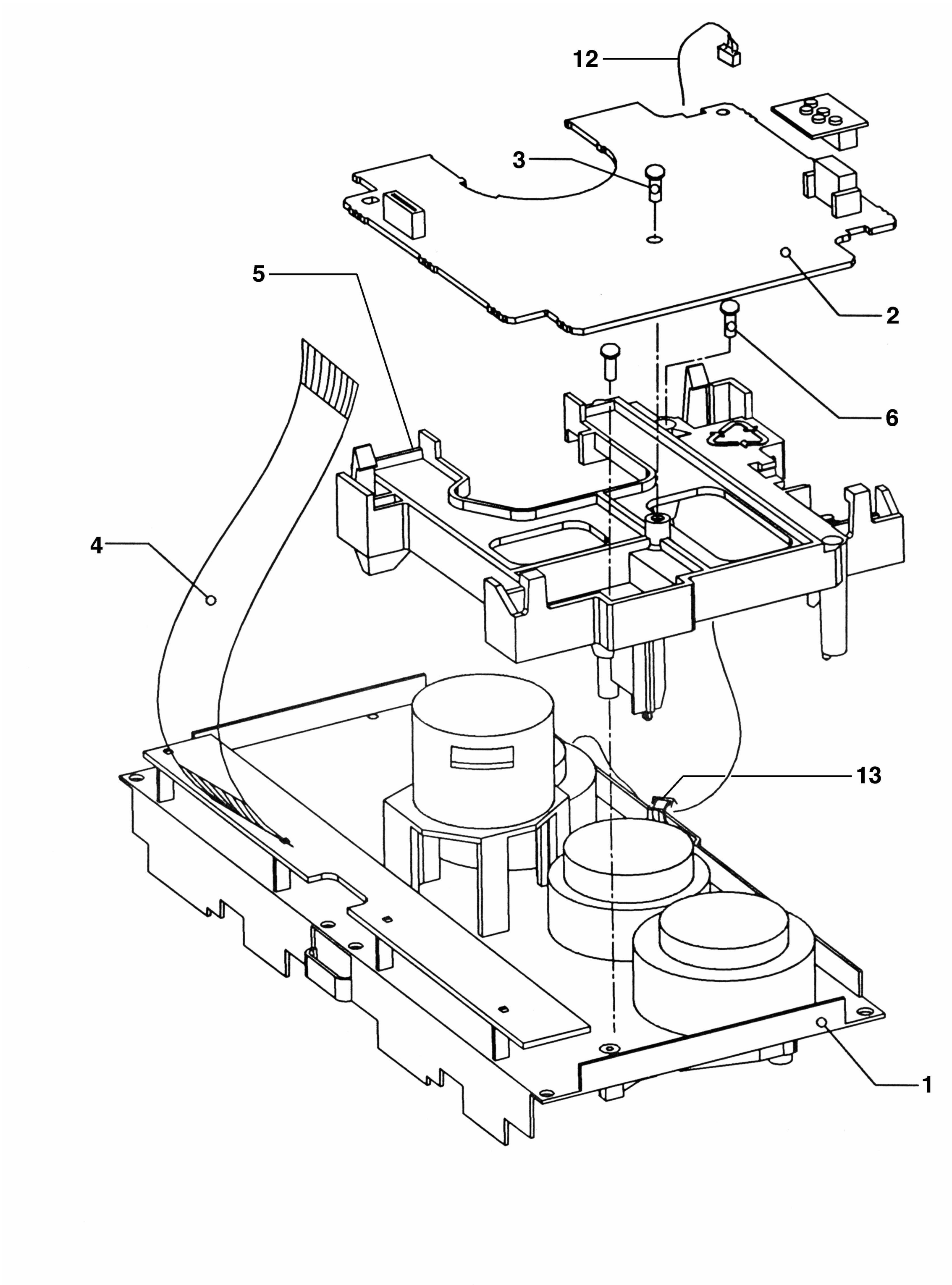
# For Provision Only

L Not For ND/DD/FR

Note : Some values may varies, see respective parts list for correct value.

* * For Versions detection during PCB testing :

	Version	In use
1.	ND / DD /FR	–
2.	ND / DD /FF	4795
3.	ND / SD	3689

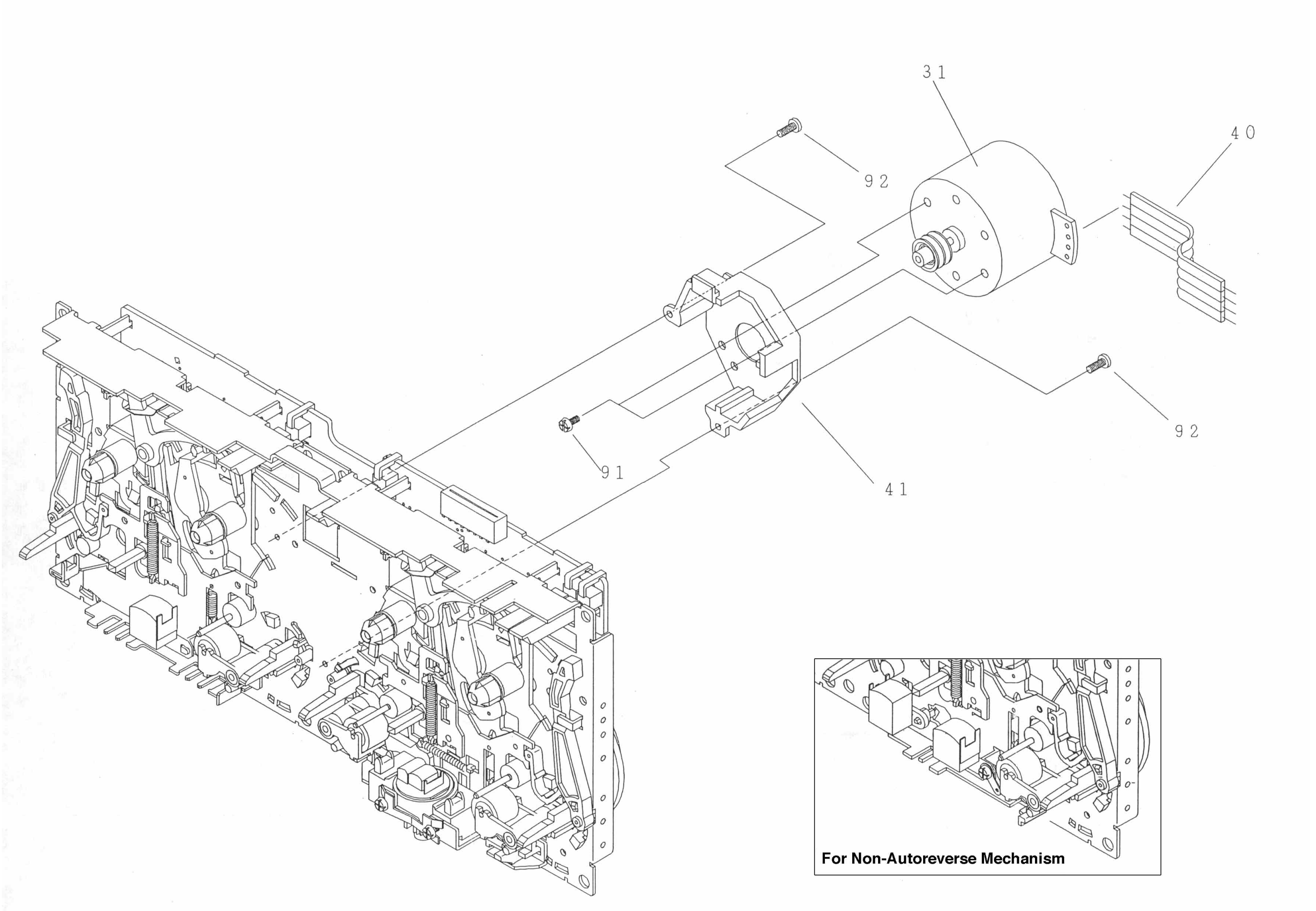


3139 118 77070 (Incl. ...77080) dd wk926

TAPE MODULE EXPLODED VIEW

1	3139 118 77130	Autoreverse Mech. CWE44FR01
1	3139 118 77140	Non-Autoreverse Mech. CWE44FF02 Chrome/Ferro
1	3139 118 77950	Non-Autoreverse Mech. CWE44FF05 Ferro
3	-	Screw D3 x 10
6	-	Screw M2 x 16
7	3139 110 34080	Flex Cable 14 pin 7,5 cm

Note: Only the parts mentioned in this list are normal service spare parts.



TAPE MECHANISM - MOTOR EXPLODED VIEW

31	4822 361 11055	Motor Assembly
91	-	Screw M2,6 x 5
92	-	Screw M2 x 5

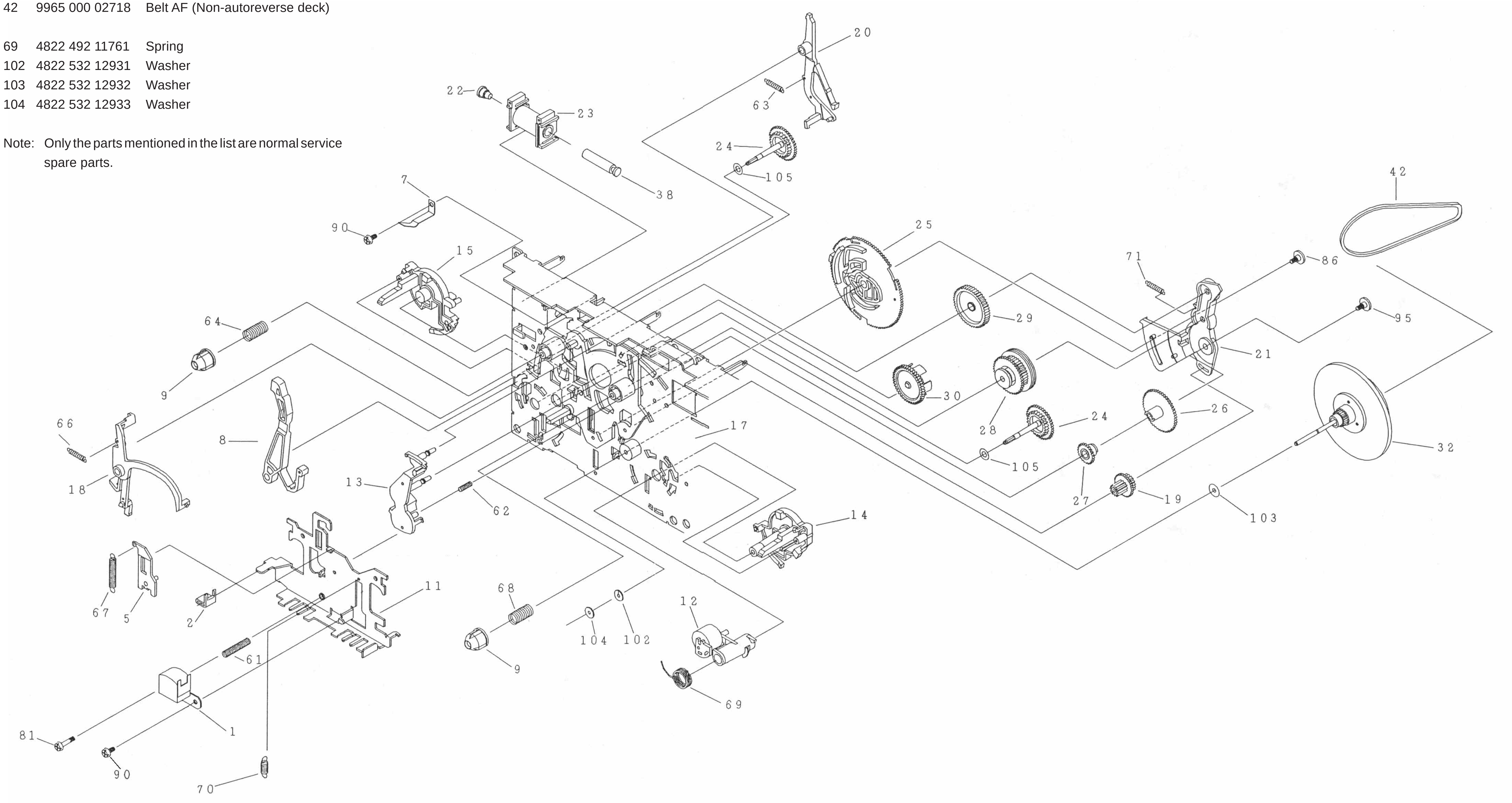
Note: Only the parts mentioned in this list are normal service spare parts.

TAPE MECHANISM A - PLAY

MECHANICAL PARTS - PLAY MECHANISM

1	9965 000 02313	Play Head (Non-Autoreverse deck)
1	9965 000 02321	Play Head (Autoreverse deck)
12	4822 402 10972	Pinch Arm Assembly R
23	9965 000 02314	Coil Assembly
25	9965 000 06443	Cam Gear
32	4822 528 11209	Flywheel Assembly RV
42	9965 000 02315	Belt AF (Autoreverse deck)
42	9965 000 02718	Belt AF (Non-autoreverse deck)
69	4822 492 11761	Spring
102	4822 532 12931	Washer
103	4822 532 12932	Washer
104	4822 532 12933	Washer

Note: Only the parts mentioned in the list are normal service spare parts.



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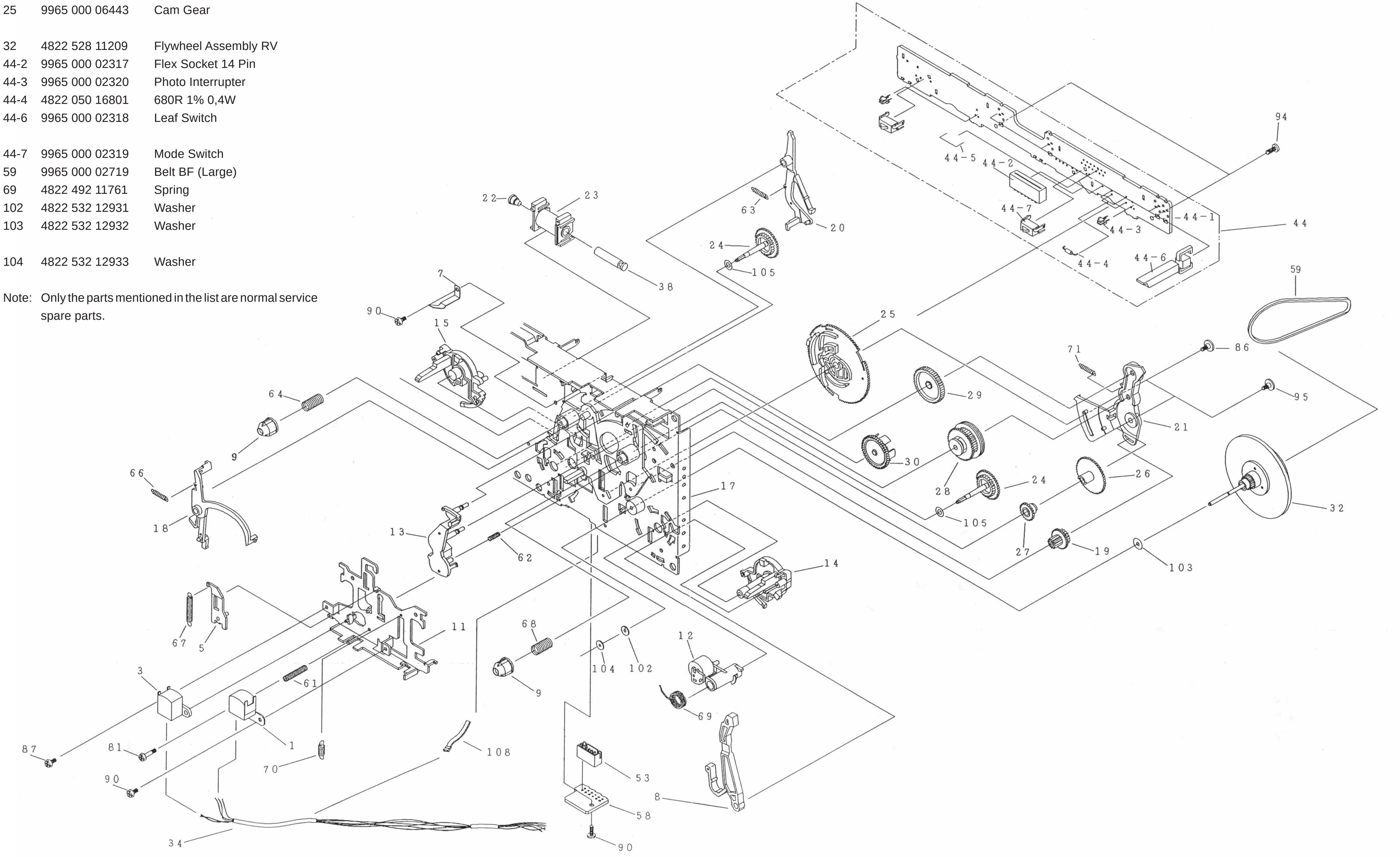
TAPE MECHANISM B - RECORD/PLAYBACK *(Non-Autoreverse version)*

MECHANICAL PARTS - REC/PB MECHANISM

1	9965 000 02313	Play Head
3	9965 000 02600	Head, Erase
12	4822 402 10972	Pinch Arm Assembly R
23	9965 000 02314	Coil Assembly
25	9965 000 06443	Cam Gear
32	4822 528 11209	Flywheel Assembly RV
44-2	9965 000 02317	Flex Socket 14 Pin
44-3	9965 000 02320	Photo Interrupter
44-4	4822 050 16801	680R 1% 0,4W
44-6	9965 000 02318	Leaf Switch
44-7	9965 000 02319	Mode Switch
59	9965 000 02719	Belt BF (Large)
69	4822 492 11761	Spring
102	4822 532 12931	Washer
103	4822 532 12932	Washer
104	4822 532 12933	Washer

Note: Only the parts mentioned in the list are normal service spare parts.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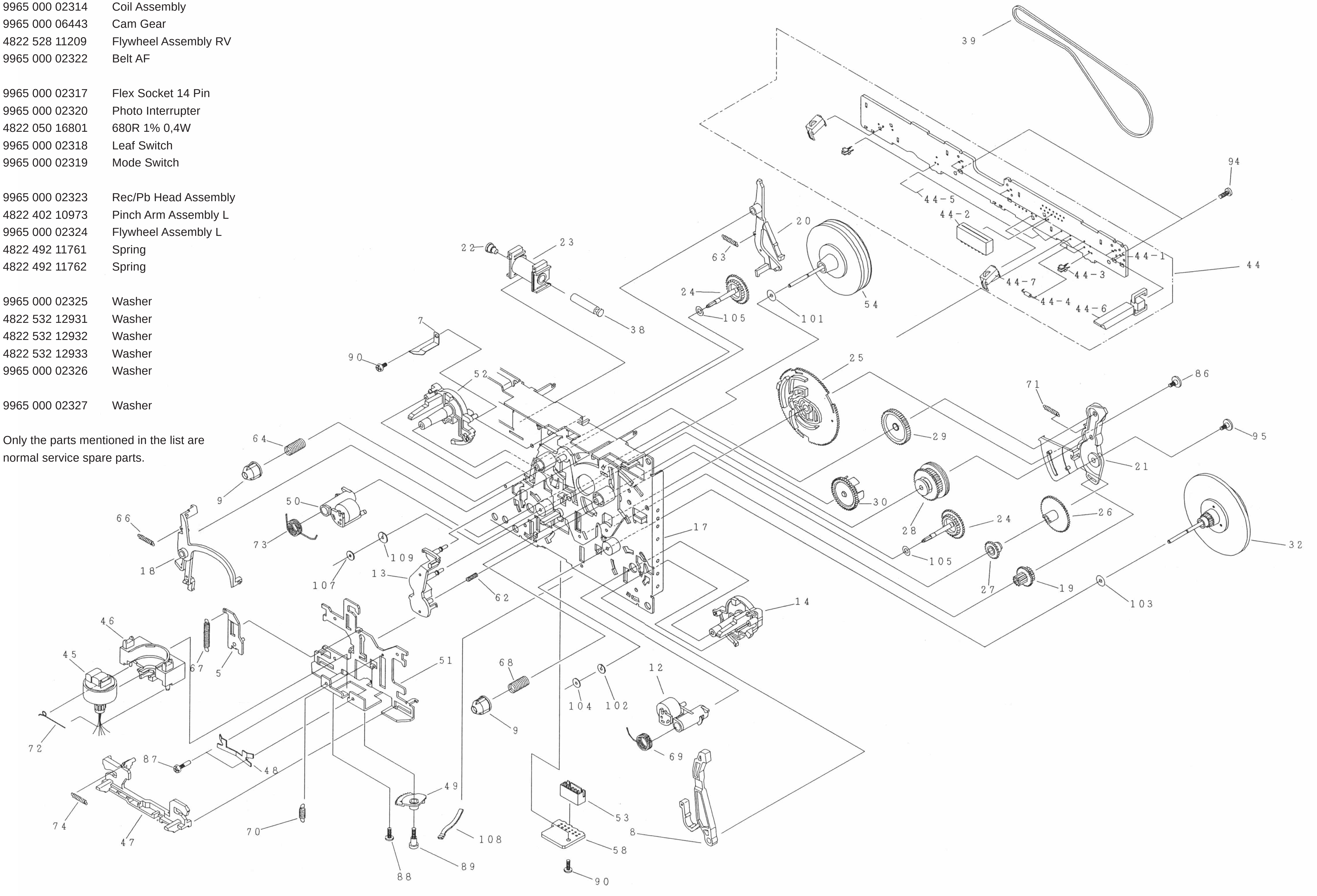
TAPE MECHANISM B - RECORD/PLAYBACK *(Autoreverse version)*

MECHANICAL PARTS - REC/PB MECHANISM

12	4822 402 10972	Pinch Arm Assembly R
23	9965 000 02314	Coil Assembly
25	9965 000 06443	Cam Gear
32	4822 528 11209	Flywheel Assembly RV
39	9965 000 02322	Belt AF
44-2	9965 000 02317	Flex Socket 14 Pin
44-3	9965 000 02320	Photo Interrupter
44-4	4822 050 16801	680R 1% 0,4W
44-6	9965 000 02318	Leaf Switch
44-7	9965 000 02319	Mode Switch
45	9965 000 02323	Rec/Pb Head Assembly
50	4822 402 10973	Pinch Arm Assembly L
54	9965 000 02324	Flywheel Assembly L
69	4822 492 11761	Spring
73	4822 492 11762	Spring
101	9965 000 02325	Washer
102	4822 532 12931	Washer
103	4822 532 12932	Washer
104	4822 532 12933	Washer
107	9965 000 02326	Washer
109	9965 000 02327	Washer

Note: Only the parts mentioned in the list are normal service spare parts.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ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD

MISCELLANEOUS

1701	482226710953	Flex Socket 7pin Vert.
1706	482226710953	Flex Socket 7pin Vert.
1770	482226751255	Flex Socket 14pin Vert.

CAPACITORS

2621	532212231647	1nF 10% 63V	
2622	532212234099	470pF 10% 63V	
2623	532212234099	470pF 10% 63V	
2624	482212614585	100nF 10% 50V	only for Ferro
2625	482212614585	100nF 10% 50V	
2701	532212233538	150pF 2% 63V	Autoreverse
2701	482212233216	270pF 5% 63V	Non-autoreverse
2702	532212233538	150pF 2% 63V	Autoreverse
2702	482212233216	270pF 5% 63V	Non-autoreverse
2703	532212232531	100pF 5% 50V	Autoreverse
2703	482212233575	220pF 5% 63V	Non-autoreverse
2704	532212232531	100pF 5% 50V	Autoreverse
2704	482212233575	220pF 5% 63V	Non-autoreverse
2705	482212233575	220pF 5% 63V	
2706	482212233575	220pF 5% 63V	
2707	532212234099	470pF 10% 63V	
2708	532212234099	470pF 10% 63V	
2709	532212231863	330pF 5% 63V	
2710	532212231863	330pF 5% 63V	
2711	532212232531	100pF 5% 50V	
2712	532212232531	100pF 5% 50V	
2713	482212440248	10µF 20% 63V	
2714	482212440248	10µF 20% 63V	
2715	482212480195	470µF 20% 10V	
2716	482212480195	470µF 20% 10V	
2717	482212233177	10nF 20% 50V	Autoreverse
2717	482212613188	15nF 5% 63V	Non-autoreverse
2718	482212233177	10nF 20% 50V	Autoreverse
2718	482212613188	15nF 5% 63V	Non-autoreverse
2719	482212612105	33nF 5% 50V	
2720	482212612105	33nF 5% 50V	
2721	532212231866	6,8nF 10% 63V	not for Ferro
2722	532212231866	6,8nF 10% 63V	not for Ferro
2723	482212613188	15nF 5% 63V	
2724	482212613188	15nF 5% 63V	
2725	532212610223	4,7nF 10% 63V	
2726	532212610223	4,7nF 10% 63V	
2727	532212234099	470pF 10% 63V	Autoreverse
2727	532212231647	1nF 10% 63V	Non-autoreverse
2728	532212234099	470pF 10% 63V	Autoreverse
2728	532212231647	1nF 10% 63V	Non-autoreverse
2729	532212232654	22nF 10% 63V	
2730	532212232654	22nF 10% 63V	
2733	532212234099	470pF 10% 63V	
2734	532212234099	470pF 10% 63V	
2735	482212614585	100nF 10% 50V	
2737	482212614585	100nF 10% 50V	
2738	482212614585	100nF 10% 50V	
2741	482212611585	22nF +80/-20% 25V	
2742	532212232654	22nF 10% 63V	
2743	532212232654	22nF 10% 63V	
2744	482212614585	100nF 10% 50V	
2760	482212614585	100nF 10% 50V	
2761	482212480144	220µF 20% 25V	
2762	482212440769	4,7µF 20% 100V	
2763	482212440433	47µF 20% 25V	
2765	482212440433	47µF 20% 25V	
2769	532212234099	470pF 10% 63V	
2770	532212234099	470pF 10% 63V	
2780	482212481151	22µF 20% 50V	
2781	482212233177	10nF 20% 50V	
2782	532212610223	4,7nF 10% 63V	
2784	482212151305	15nF 10% 50V	
2785	482212421913	1µF 20% 63V	
2786	532212232531	100pF 5% 50V	
2787	482212612105	33nF 5% 50V	

RESISTORS

3601	482211711449	2k2 1% 0,1W	
3602	482205120273	27k 5% 0,1W	
3603	482211711449	2k2 1% 0,1W	
3604	482211711148	56k 1% 0,1W	
3605	482211711449	2k2 1% 0,1W	
3606	482205120124	120k 5% 0,1W	
3607	482211652256	2k2 5% 0,5W	
3608	482205120273	27k 5% 0,1W	
3609	482211652256	2k2 5% 0,5W	
3610	482205120124	120k 5% 0,1W	
3611	482211652256	2k2 5% 0,5W	
3612	482211711148	56k 1% 0,1W	
3613	482205120273	27k 5% 0,1W	
3614	482205120273	27k 5% 0,1W	
3616	482211710833	10k 1% 0,1W	Autoreverse
3616	482205110102	1k 2% 0,25W	Non-autoreverse
3618	482211711507	6k8 1% 0,1W	Autoreverse
3620	482210011141	Trim. 10k 30%	Autoreverse
3622	482210011141	Trim. 10k 30%	Non-autoreverse
3623	482211710837	100k 1% 0,1W	
3624	482211710837	100k 1% 0,1W	
3625	482205110102	1k 2% 0,25W	
3626	482205110102	1k 2% 0,25W	
3628	482211710837	100k 1% 0,1W	
3630	482205120471	470R 5% 0,1W	
3672	482205120472	4k7 5% 0,1W	Autoreverse
3674	482211652283	4k7 5% 0,5W	
3676	482211710834	47k 1% 0,1W	Autoreverse
3678	482211710834	47k 1% 0,1W	
3679	482211710834	47k 1% 0,1W	
3680	482211710834	47k 1% 0,1W	

ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD

3685	482211652234	100k 5% 0,5W	
3686	482211710837	100k 1% 0,1W	
3687	482211711503	220R 1% 0,1W	not for Ferro
3688	482211710361	680R 1% 0,1W	Autoreverse
3701	482211711503	220R 1% 0,1W	
3702	482211711503	220R 1% 0,1W	
3703	482211711503	220R 1% 0,1W	
3704	482211711503	220R 1% 0,1W	
3705	482211711503	220R 1% 0,1W	
3706	482211711503	220R 1% 0,1W	
3707	482205120101	100R 5% 0,1W	
3708	482205120101	100R 5% 0,1W	
3709	482205120109	10R 5% 0,1W	
3710	482205120109	10R 5% 0,1W	
3711	482205120154	150k 5% 0,1W	
3712	482205120154	150k 5% 0,1W	
3713	482205120109	10R 5% 0,1W	
3714	482205120109	10R 5% 0,1W	
3715	482205120182	1k8 5% 0,1W	
3716	482205120182	1k8 5% 0,1W	
3717	482211711449	2k2 1% 0,1W	
3718	482211711449	2k2 1% 0,1W	
3719	482211711383	12k 1% 0,1W	
3720	482211711383	12k 1% 0,1W	
3721	482205120392	3k9 5% 0,1W	
3722	482205120392	3k9 5% 0,1W	
3723	482211683933	15k 1% 0,1W	Autoreverse
3723	482211710965	18k 1% 0,1W	Non-autoreverse
3724	482211683933	15k 1% 0,1W	Autoreverse
3724	482211710965	18k 1% 0,1W	Non-autoreverse
3725	482205120109	10R 5% 0,1W	not for Ferro
3726	482205120109	10R 5% 0,1W	not for Ferro
3727	482205120562	5k6 5% 0,1W	Autoreverse
3727	482211711507	6k8 1% 0,1W	Non-autoreverse
3728	482205120562	5k6 5% 0,1W	Autoreverse
3728	482211711507	6k8 1% 0,1W	Non-autoreverse
3729	482205120332	3k3 5% 0,1W	Autoreverse
3729	482205120472	4k7 5% 0,1W	Non-autoreverse
3730	482205120332	3k3 5% 0,1W	Autoreverse
3730	482205120472	4k7 5% 0,1W	Non-autoreverse
3731	482205120822	8k2 5% 0,1W	
3732	482205120822	8k2 5% 0,1W	
3733	482205120122	1k2 5% 0,1W	
3734	482205120122	1k2 5% 0,1W	
3735	482205120223	22k 5% 0,1W	
3736	482205120223	22k 5% 0,1W	
3741	482211711449	2k2 1% 0,1W	
3742	482211711449	2k2 1% 0,1W	
3743	482211711139	1k5 1% 0,1W	Autoreverse
3743	482211711449	2k2 1% 0,1W	Non-autoreverse
3744	482211711139	1k5 1% 0,1W	Autoreverse
3744	482211711449	2k2 1% 0,1W	Non-autoreverse
3745	482205120332	3k3 5% 0,1W	Autoreverse
3745	482205120562	5k6 5% 0,1W	Non-autoreverse
3746	482205120332	3k3 5% 0,1W	Autoreverse
3746	482205120562	5k6 5% 0,1W	Non-autoreverse
3748	482211711449	2k2 1% 0,1W	
3749	482211710834	47k 1% 0,1W	
3751	482211710833	10k 1% 0,1W	
3752	482211710837	100k 1% 0,1W	
3753	482211710837	100k 1% 0,1W	
3754	482205120105	1M 5% 0,1W	Autoreverse
3754	482205120479	47R 5% 0,1W	Non-autoreverse
3755	482205120105	1M 5% 0,1W	Autoreverse
3755	482205120479	47R 5% 0,1W	Non-autoreverse
3756	482211713579	220k 1% 0,1W	
3757	482211713579	220k 1% 0,1W	
3758	482211710833	10k 1% 0,1W	
3759	482211710833	10k 1% 0,1W	
3760	482205120121	120R 5% 0,1W	
3761	482205021003	10k 1% 0,6W	
3762	482211711454	820R 1% 0,1W	
3763	482205120154	150k 5% 0,1W	
3764	482211683872	220R 5% 0,5W	
3765	482205120393	39k 5% 0,1W	
3766	482205120475	4M7 5% 0,1W	
3767	482205120475	4M7 5% 0,1W	
3768	482211710833	10k 1% 0,1W	
3769	482211711383	12k 1% 0,1W	Autoreverse
3769	482205120822	8k2 5% 0,1W	Non-autoreverse
3770	482211711139	1k5 1% 0,1W	
3771	482205120122	1k2 5% 0,1W	
3772	482211711507	6k8 1% 0,1W	Autoreverse
3772	482205120562	5k6 5% 0,1W	Non-autoreverse
3773	482210012227	Trimmer 4k7 30% 0,1W	
3774	482211683933	15k 1% 0,1W	Autoreverse
3774	482205120822	8k2 5% 0,1W	Non-autoreverse
3775	482205120478	4R7 5% 0,1W	
3776	482211711507	6k8 1% 0,1W	
3777	482211710353	150R 1% 0,1W	
3778	482205210688	⚠ 6R8 5% 0,33W	
3779	482205120334	330k 5% 0,1W	
3780	482205120105	1M 5% 0,1W	
3781	482205120475	4M7 5% 0,1W	
3784	482205110102	1k 2% 0,25W	
3786	482205120223	22k 5% 0,1W	
3787	482205120105	1M 5% 0,1W	
3788	482205120105	1M 5% 0,1W	
3789	482211710834	47k 1% 0,1W	
4701	482205120008	0R Jumper 0805	
4702	482205120008	0R Jumper 0805	
4703	482205120008	0R Jumper 0805	
4704	482205120008	0R Jumper 0805	
4705	482205120008	0R Jumper 0805	

ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD

RESISTORS

4706	482205120008	0R Jumper 0805	
4707	482205120008	0R Jumper 0805	
4708	482205120008	0R Jumper 0805	
4709	482205120008	0R Jumper 0805	
4710	482205120008	0R Jumper 0805	
4711	482205120008	0R Jumper 0805	
4712	482205120008	0R Jumper 0805	
4713	482205120008	0R Jumper 0805	
4714	482205120008	0R Jumper 0805	
4715	482205120008	0R Jumper 0805	
4716	482205120008	0R Jumper 0805	
4717	482205120008	0R Jumper 0805	
4718	482205120008	0R Jumper 0805	
4719	482205120008	0R Jumper 0805	
4720	482205120008	0R Jumper 0805	
4721	482205120008	0R Jumper 0805	
4722	482205120008	0R Jumper 0805	
4723	482205120008	0R Jumper 0805	
4724	482205120008	0R Jumper 0805	
4725	482205120008	0R Jumper 0805	
4726	482205120008	0R Jumper 0805	
4727	482205120008	0R Jumper 0805	
4728	482205120008	0R Jumper 0805	
4729	482205120008	0R Jumper 0805	
4730	482205120008	0R Jumper 0805	
4731	482205120008	0R Jumper 0805	
4732	482205120008	0R Jumper 0805	
4733	482205120008	0R Jumper 0805	
4734	482205120008	0R Jumper 0805	
4735	482205120008	0R Jumper 0805	
4736	482205120008	0R Jumper 0805	
4737	482205120008	0R Jumper 0805	
4738	482205120008	0R Jumper 0805	
4739	482205120008	0R Jumper 0805	
4740	482205120008	0R Jumper 0805	
4741	482205120008	0R Jumper 0805	
4742	482205120008	0R Jumper 0805	
4744	482205120008	0R Jumper 0805	
4745	482205120008	0R Jumper 0805	
4746	482205120008	0R Jumper 0805	
4748	482205120008	0R Jumper 0805	
4785	482205120008	0R Jumper 0805	only for Ferro
4790	482205120008	0R Jumper 0805	
4794	482205120008	0R Jumper 0805	
4795	482205120008	0R Jumper 0805	

COILS & FILTERS

5701	482215711477	Coil 2,2µH 5%
5703	482215620946	Osc Coil 100kHz

DIODES

6611	482213031878	1N4003G	
6612	482213031878	1N4003G	
6614	482213030621	1N4148	Autoreverse
6770	482213030621	1N4148	
6771	482213030621	1N4148	
6772	482213030621	1N4148	
6773	482213030621	1N4148	
6774	482213030621	1N4148	
6775	482213030621	1N4148	
6776	482213030621	1N4148	
6777	482213034382	BZX79-F8V2	
6778	482213030621	1N4148	
6782	482213030621	1N4148	
6785	482213030621	1N4148	
6786	482213030621	1N4148	

TRANSISTORS & INTEGRATED CIRCUITS

7610	532220911306	HEF4094BT	
7612	532213060845	BC807-25	
7613	532213060845	BC807-25	
7614	532213060845	BC807-25	
7616	482213060373	BC857B	Autoreverse
7618	482213060511	BC847B	
7619	482213060511	BC847B	
7620	482213060511	BC847B	
7622	482213060511	BC847B	Autoreverse
7623	482213060511	BC847B	
7624	482213060511	BC847B	
7710	482220932919	HEF4952BT	
7720	932214000668	AN7323S	
7730	482220932919	HEF4952BT	
7740	482220932919	HEF4952BT	
7780	482213060511	BC847B	
7781	482213042804	BC817-25	
7782	482213044568	BC557B	
7783	482213060511	BC847B	
7784	482213060373	BC857B	
7786	482213063494	J111	
7787	482213060511	BC847B	
7791	482213060511	BC847B	
7792	482213060511	BC847B	

Note: Only the parts mentioned in this list are normal service spare parts.

ETF7 TAPE MODULE

(Dolby Version)

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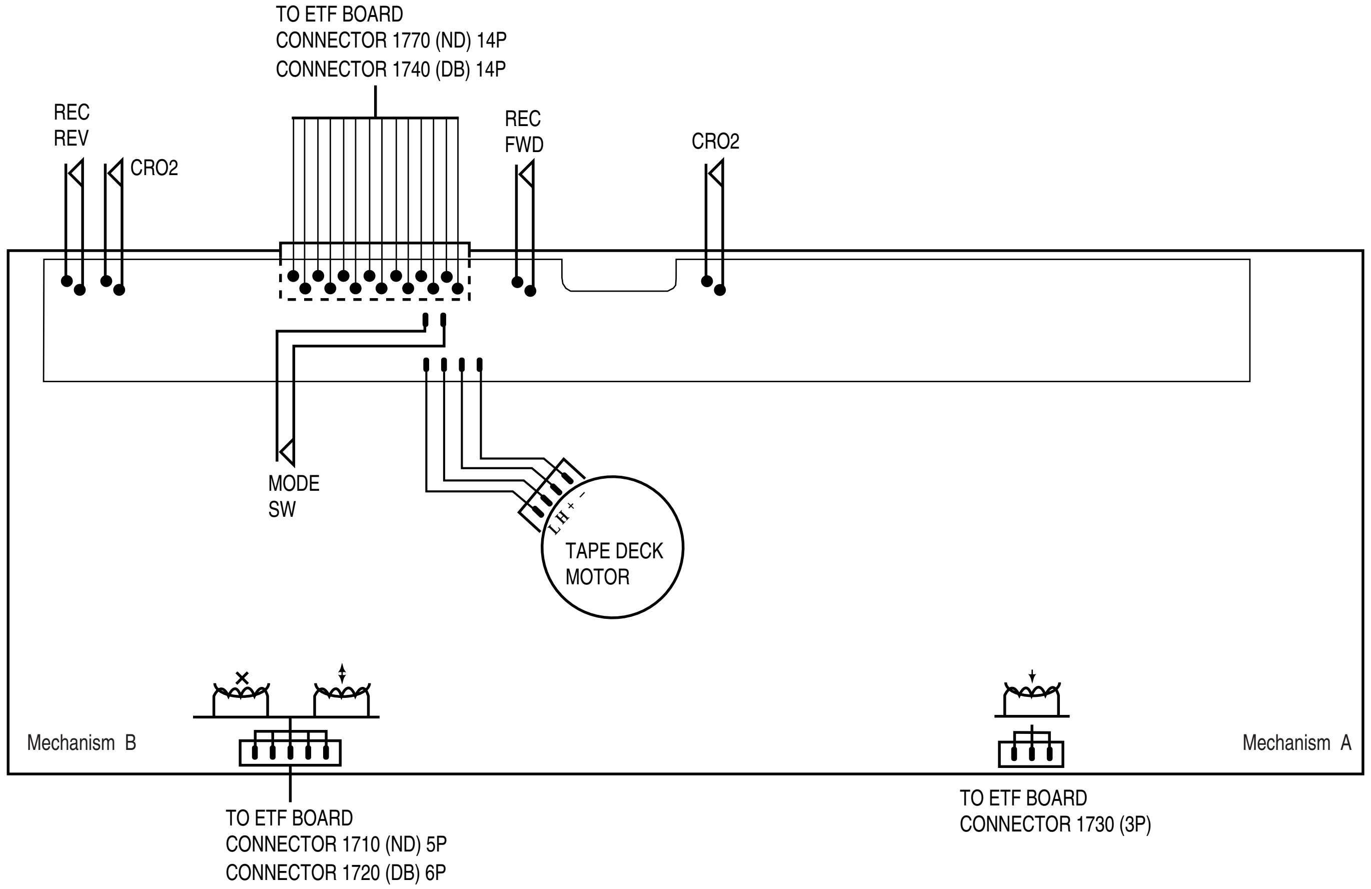
Tapedeck wiring (Double deck)



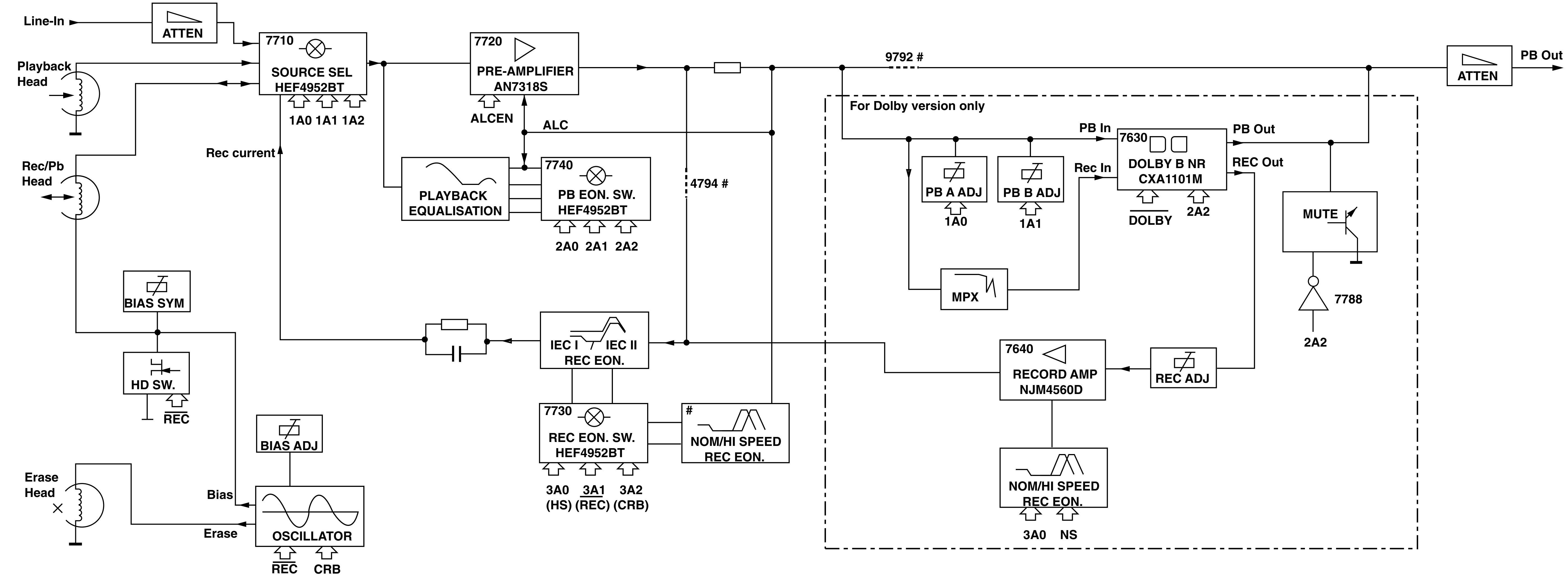
TO ETF BOARD
CONNECTOR 1770 (ND) 14P
CONNECTOR 1740 (DB) 14P
REC
REV
CRO2
REC
FWD
CRO2
MODE
SW
TAPE DECK
MOTOR
Mechanism B
Mechanism A
TO ETF BOARD
CONNECTOR 1710 (ND) 5P
CONNECTOR 1720 (DB) 6P
TO ETF BOARD
CONNECTOR 1730 (3P)

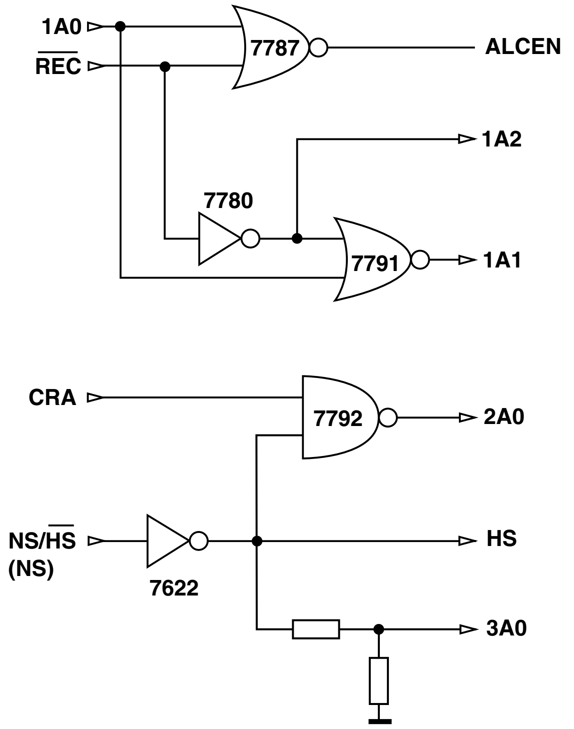
OPTIONS / VARIANTS TABLE

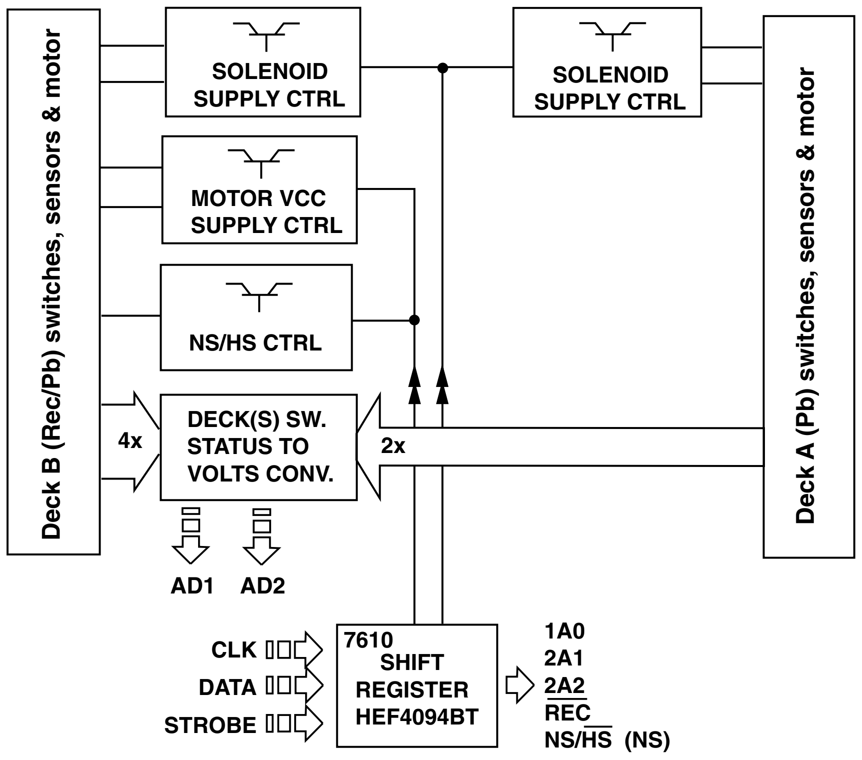
MODULE	**ETF7**		
VARIANT	**1**	**2**	**3**
FEATURES	**DB/DD/FR**	**ND/DD/FR**	**ND/DD/FF**
Deck configuration	double	double	double
Deck type (Tokyo Pigeon)	CWE	CWE	CWE
Autoreverse	yes (B)	yes (B)	no
Auto Replay	no	no	yes (A+B)
Motor configuration	single	single	single
Auto tape type selection	yes	yes	yes
Dolby type B Noise Reduction	yes	no	no
19 kHz pilot suppression	yes	no	no
Normal / High speed dubbing	yes	yes	no
Cue/Review & Fwd/Rewind	yes	yes	yes

DB = Dolby B NR
DD = Double Deck
FF = Non-Autoreverse
FR = Autoreverse Deck B
ND = Non-Dolby
SD = Single Deck

BLOCK DIAGRAM


Line-In
ATTEN
Playback Head
Rec/Pb Head
Erase Head
7710
SOURCE SEL
HEF4952BT
1A0 1A1 1A2
7720
PRE-AMPLIFIER
AN7318S
ALCEN
ALC
Rec current
PLAYBACK EQUALISATION
7740
PB EON. SW.
HEF4952BT
2A0 2A1 2A2
4794 #
9792 #
ATTEN
PB Out
For Dolby version only
PB In
7630
DOLBY B NR
CXA1101M
PB Out
REC Out
Rec In
PB A ADJ
1A0
PB B ADJ
1A1
DOLBY
2A2
MUTE
7788
2A2
MPX
BIAS SYM
HD SW.
REC
IEC I
IEC II
REC EON.
7640
RECORD AMP
NJM4560D
REC ADJ
7730
REC EON. SW.
HEF4952BT
3A0 (HS)
3A1 (REC)
3A2 (CRB)
#
NOM/HI SPEED REC EON.
NOM/HI SPEED REC EON.
3A0 NS
BIAS ADJ
Bias
Erase
OSCILLATOR
REC CRB


1A0
REC
7787
ALCEN
1A2
7780
7791
1A1
CRA
7792
2A0
NS/HS (NS)
7622
HS
3A0


Deck B (Rec/Pb) switches, sensors & motor
SOLENOID SUPPLY CTRL
MOTOR VCC SUPPLY CTRL
NS/HS CTRL
4x
DECK(S) SW. STATUS TO VOLTS CONV.
2x
AD1 AD2
SOLENOID SUPPLY CTRL
Deck A (Pb) switches, sensors & motor
CLK
DATA
STROBE
7610
SHIFT REGISTER
HEF4094BT
1A0
2A1
2A2
REC
NS/HS (NS)

NOTE: # For Non-dolby version only
Only 1 channel is presented.

▯▯⇨ MicroProcessor Control / Communication lines

⇨ Direct / Indirect Control lines from Shift Registers

Brief introduction

General

1. Playback Mode
   Signal from the playback head Deck A or Deck B is selected and fed through by the Mode Selector IC7710 (HEF4952BT). The signal is amplified by amplifier IC7720 (AN7323S) before feeding to the IC7740 (HEF4952BT) and out to the AF Board via connector 1701.

2. Recording Mode
   Recording Signal is selected and fed through by the Mode Selector IC7710 (HEF4952BT) which is then amplified by the amplifier IC7720 (AN7323S). The amplified output signal will pass through IC7730 (HEF4952BT) for record equalization and back to IC7710 (HEF4952BT) before registered into the Rec/PB Head of Deck B.

3. Dubbing Mode
   In Dubbing mode, signal from the playback head Deck A is selected and fed through by the Mode Selector IC7710 (HEF4952BT) which is then equalised for playback mode by the amplifier IC7720 (AN7323S) so that a flat response is obtained after the pre-amp. The equalised signal will then follow the same path as in the Recording mode.

4. Mode Selector
   The Mode Selector IC7710 (HEF4952BT) caters for 4 inputs signal, namely Playback Signal from Deck A, Playback Signal from Deck B, Recording Signal and Dubbing Signal.

5. Amplifier PB/REC
   Amplifier IC7720 (AN7323S) is for the purpose of amplifying the Playback and Recording signal from the Mode Selector.

6. Automatic Level Control (ALC)
   ALC circuit consists of resistors (3760, 3765, 3766, 3767), capacitors (2762 , 2763) and control by transistor 7787 (BC847B). ALC limits the amplifier output to a constant value when input signal becomes too large, thus limiting recording current to below saturation level, to prevent recording distortion.

7. Muting Circuit (For Non-Dolby version only)
   Switch S4 of the IC7740 (HEF4952BT) is for the purpose of muting the output during Recording mode. During Recording mode, S4 is closed and shorted to the ground.

8. IC7740 (HEF4952BT)
   The function of the IC7740 (HEF4952BT) is to change time constant between 120us Ferro (IEC I) and 70us Chrome (IEC II) during playback mode. It will automatically determined whether the tape type is 120us Ferro (IEC I) or 70us Chrome (IEC II). This IC will switch to Flat Gain during the Recording mode.

9. IC7730 (HEF4952BT)
   The function of the IC7730 (HEF4952BT) is to change gain and time constant according to tape type and recording speed to boost recording current at higher frequency during recording to compensate for head loss. It will automatically determined whether the tape type is 120us Ferro (IEC I) or 70us Chrome (IEC II).

10. Bias Level
    Bias Level making use of the Variable resistor (3773) for adjusting the optimal level of the bias current for Ferro or Chrome.

11. Bias Symm (For Dolby B NR version only)
    Bias Symm making use of the Variable resistor (3785) to adjust the bias current for the left and the right channel to be equal.

12. PB Switch
    Playback Switch which consists of the FETs 7785 (For Dolby B NR version only) & 7786 (J111) is for the purpose of providing a virtual ground for the Rec/PB Head (Deck B) during Playback mode. During the Playback mode, the FETs are turn on and shorted pin 2 and 4 of connector 1720 to the ground. During Recording mode, the FETs are turn off to allow the oscillator signal to be superposition onto the Recording signal for recording.

13. Motor Speed (For FR versions only)
    During High speed dubbing, a feedback signal from the uP through pin 03 of the IC7610 (HEF4094BT) will trigger the transistors 7622 (BC847B) and 7616 (BC857B) to cause a change in the voltage level between High and Low, thus changing the speed of the motor.

14. IC7610 (HEF4094BT)
    IC7610 (HEF4094BT) is a Shift Register use for issues the logic for cmos switch ICs (HEF4952BT) via 1A0, 2A1 and 2A2. It also issues logic to On/Off SOL_A, SOL_B and MOT. Recording speed is controlled via NS/HS.

Dolby Circuit (For sets with Dolby B NR version only)

15. IC7630 (CXA1551M)
    IC7630 (CXA1551M) in the Dolby circuit is a Dolby Noise Reduction Type B IC for the Playback and Recording signal. Noise Reduction ON/OFF are controlled by $\overline{\text{DOLBY}}$, which is from CLK, direct from uP. After clocking in DATA, CLK is set to HIGH/LOW for NR OFF/ON.

16. 19kHz Filter
    The 19kHz filters 5631 & 5632 (LXD-210) in the Dolby circuit is for the purpose of filtering the 19kHz Pilot Tone (for Tuner signal only) of the Recording signal.

17. Level Adjust
    The Variable resistor 3635, 3636,3641 and 3642 in the Dolby circuit is for adjusting the playback level of the Dolby reference (400Hz , 200nWb/m). Transistor 7631, 7632 are ON to enable adjustment of 3641, 3642 during Playback Deck A. Transistor 7633, 7634 and 3635, 3636 are active for Playback Deck B.

18. Amplifier IC7640 (NJM4560M)
    The Amplifiers 7640A & 7640B (NJM4560M) in the Dolby circuit is for the purpose of amplified the Recording signal.

19. Muting Circuit
    The muting circuit which consists of transistors 7788, 7789 and 7790 (BC847B) is for the purpose of muting the output during Recording mode.

NOTATIONS & ABBREVIATIONS USED IN THIS DOCUMENT

CR	Chrome (IEC type II)
DB	Dolby NR type B
DD	Double Deck
DM	Double Motor
FE	Ferro (IEC type I)
FF	Non-Autoreverse
FR	Autoreverse Deck B
Gnd x	Ground x
HSD	High speed dubbing
ND	Non Dolby
NR	Noise Reduction
NSD	Normal speed dubbing
PB	Playback
REC	Record
S/A	Sub-assy
SD	Single Deck
SM	Single Motor

CONNECTORS ASSIGNMENTS:

CONNECTOR 1701 INTERCONNECTION TO AF BOARD

○	1	REC-L	Record input left
○	2	REC-R	Record input right
○	3	GND A	AF Ground
○	4	TAPE-L	Playback output left
○	5	+12V	D.C. supply (+12V) for AF electronics
○	6	TAPE-R	Playback output right
○	7	-CMOS	Negative d.c. supply (-9V) for CMOS ICs

CONNECTOR 1703 INTERCONNECTION TO AF BOARD

○	1	GND M	Motor Ground
○	2	+MOTOR	D.C. supply (+12V) for tape deck motor & solenoid

CONNECTOR 1706 INTERCONNECTION TO FRONT BOARD

○	1	AD2	Deck sensing switches output voltage / Deck A EOT
○	2	AD1	Deck sensing switches output voltage / Deck B EOT
○	3	+5V	DC supply +5V for ADC network
○	4	GND P	Control & Oscillator Ground
○	5	CLK	HEF4094BT shift register Clock line
○	6	DATA	HEF4094BT shift register Data line
○	7	STROBE	HEF4094BT shift register Strobe line

CONNECTOR 1710 DECK B HEADS CONNECTON *(For Non-Dolby version only)*

○	1	B R/P HD L+	R/P Head left channel positive
○	2	GND A	R/P Head return ground
○	3	B R/P HD R+	R/P Head right channel positive
○	4	ERASE HEAD	Erase Head
○	5	GND A	Erase Head ground

CONNECTOR 1720 DECK B HEADS CONNECTON *(For Dolby B NR version only)*

○	1	B R/P HD L+	R/P Head left channel positive
○	2	B R/P HD L-	R/P Head left channel negative
○	3	B R/P HD R+	R/P Head right channel positive
○	4	B R/P HD R-	R/P Head right channel negative
○	5	ERASE HEAD	Erase Head
○	6	GND A	Erase Head ground

CONNECTOR 1730 DECK A HEAD CONNECTIONS *(For Double Deck versions only)*

○	1	A PB HD L+	Pb Head left channel positive
○	2	GND A	Pb Head return ground shield
○	3	A PB HD R+	Pb Head right channel positive

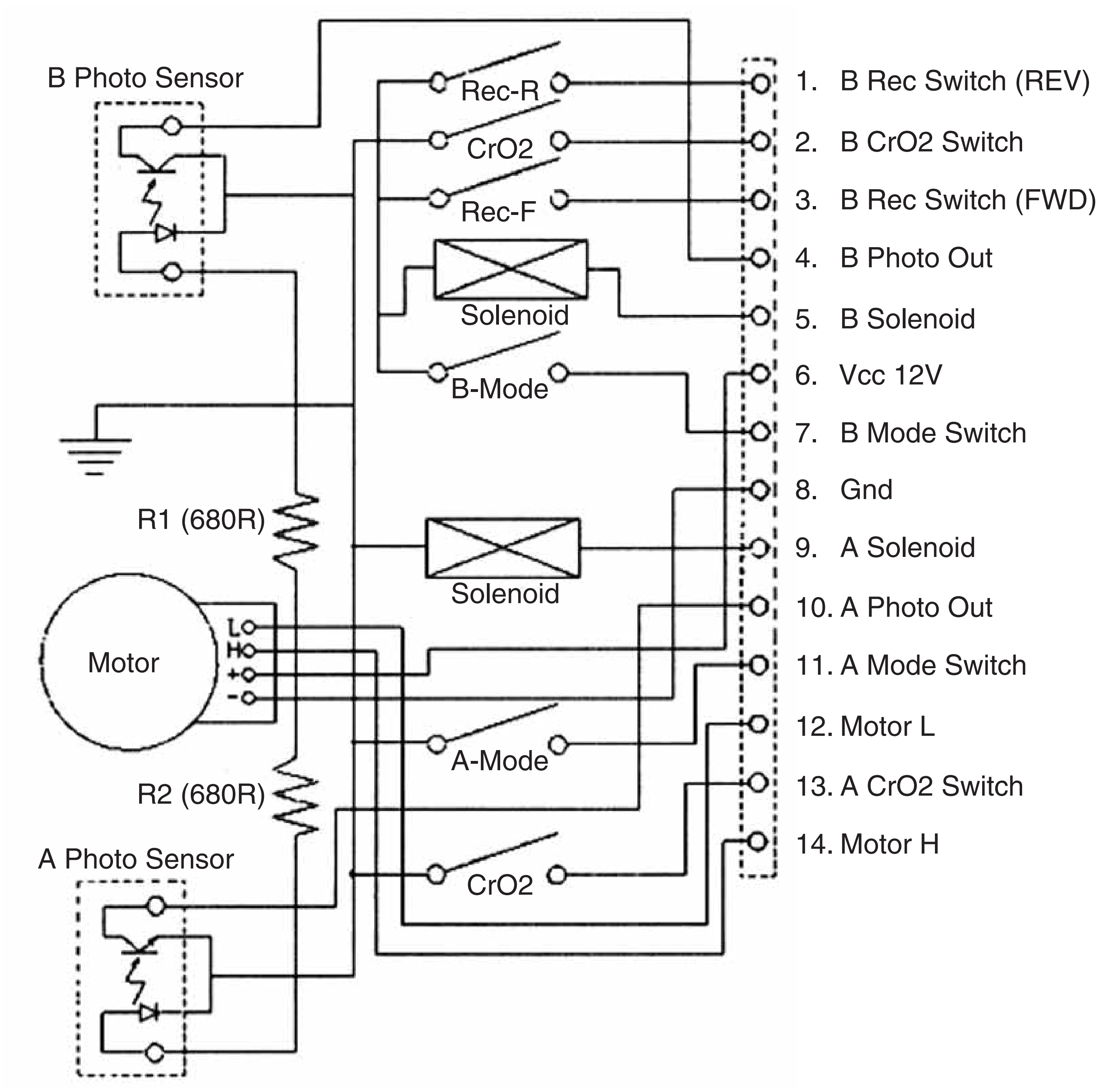
CONNECTOR 1740 DECK A & B CONTROL INTERFACE *(For Dolby B NR version only)*

○	1	REC REW	Record tab protection status switch (reverse)	[open=on: close=off]
○	2	CrO2 B	Chrome tape detection switch deck B	[open=Cr: close=Fe]
○	3	REC FWD	Record tab protection status switch (forward)	[open=on: close=off]
○	4	PHOTO B	Photo sensor output (tape movement indication)	
○	5	SOL B	Solenoid supply for deck B	
○	6	Vcc	Deck / Motor supply	
○	7	MODE B	Mode switch (head engagement)	[open=off: close=engaged]
○	8	GND M	Deck / Motor ground	
○	9	SOL A	Solenoid supply for deck A	
○	10	PHOTO A	Photo sensor output (tape movement indication)	
○	11	MODE A	Mode switch (head engagement)	[open=off: close=engaged]
○	12	L	L pin for motor	
○	13	CrO2 A	Chrome tape detection switch deck A	[open=Cr: close=Fe]
○	14	H	H pin for motor	

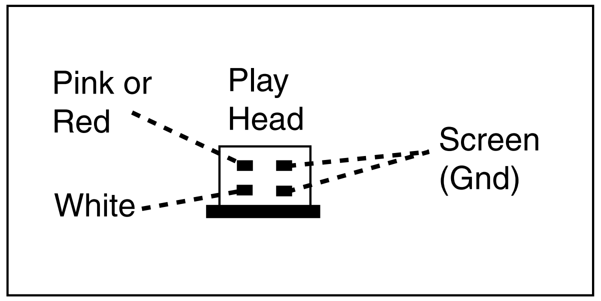
CONNECTOR 1770 DECK A & B CONTROL INTERFACE *(For Non-Dolby version only)*

○	1	REC REW	Record tab protection status switch (reverse)	[open=on: close=off]
○	2	CrO2 B	Chrome tape detection switch deck B	[open=Cr: close=Fe]
○	3	REC FWD	Record tab protection status switch (forward)	[open=on: close=off]
○	4	PHOTO B	Photo sensor output (tape movement indication)	
○	5	SOL B	Solenoid supply for deck B	
○	6	Vcc	Deck / Motor supply	
○	7	MODE B	Mode switch (head engagement)	[open=off: close=engaged]
○	8	GND M	Deck / Motor ground	
○	9	SOL A	Solenoid supply for deck A	
○	10	PHOTO A	Photo sensor output (tape movement indication)	
○	11	MODE A	Mode switch (head engagement)	[open=off: close=engaged]
○	12	L	L pin for motor	
○	13	CrO2 A	Chrome tape detection switch deck A	[open=Cr: close=Fe]
○	14	H	H pin for motor	

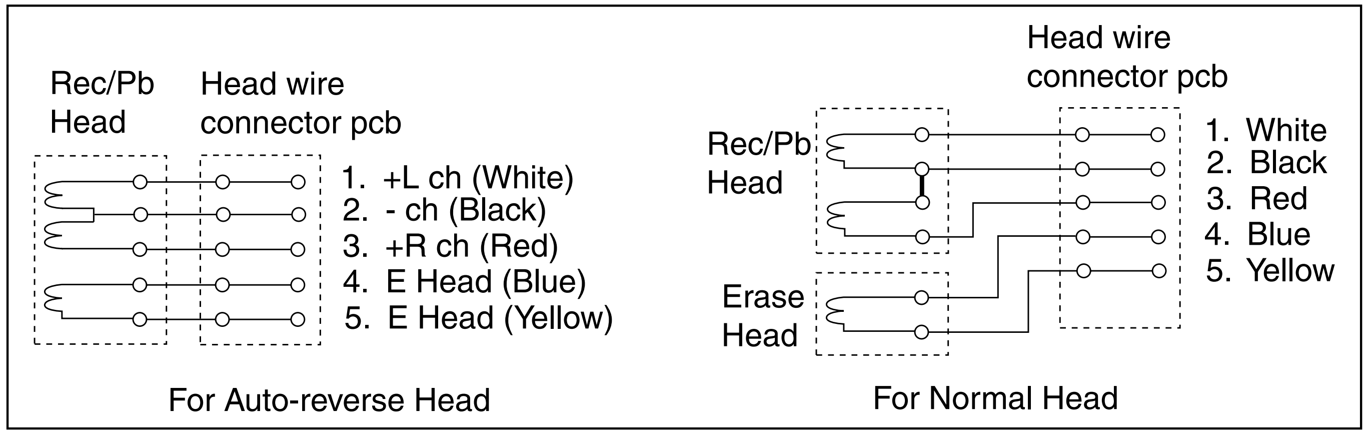
TAPE MECHANISM ELECTRONICS


B Photo Sensor
Rec-R
CrO2
Rec-F
Solenoid
B-Mode
R1 (680R)
Solenoid
Motor
L
H
+
-
A-Mode
R2 (680R)
CrO2
A Photo Sensor
1. B Rec Switch (REV)
2. B CrO2 Switch
3. B Rec Switch (FWD)
4. B Photo Out
5. B Solenoid
6. Vcc 12V
7. B Mode Switch
8. Gnd
9. A Solenoid
10. A Photo Out
11. A Mode Switch
12. Motor L
13. A CrO2 Switch
14. Motor H

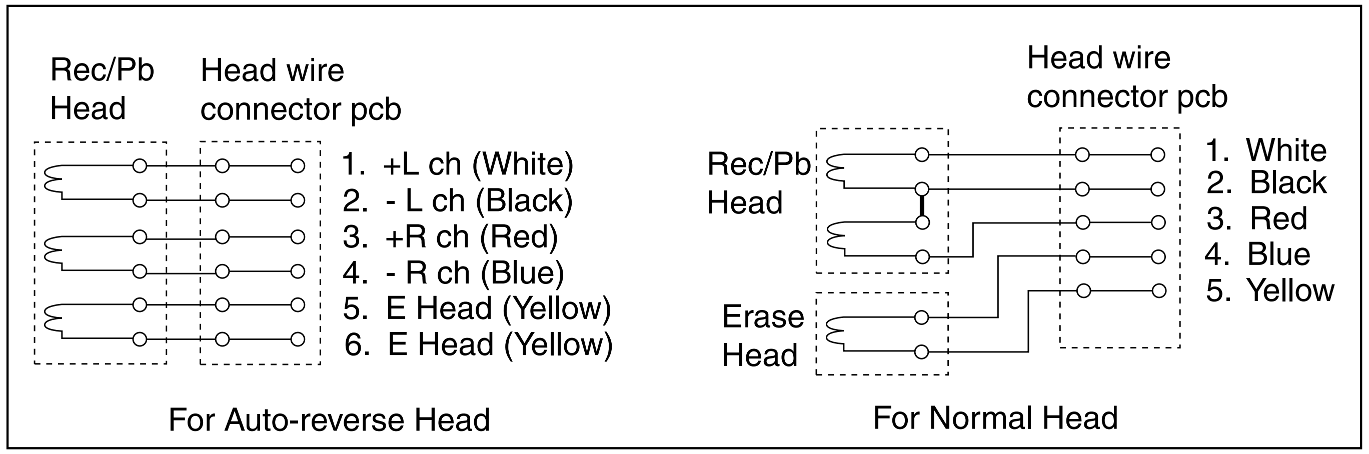
Mechanism A Head Wires Soldering


Pink or
Red
Play
Head
White
Screen
(Gnd)

Mechanism B Head Wires Soldering (Non-Dolby version)


Rec/Pb
Head
Head wire
connector pcb
1. +L ch (White)
2. - ch (Black)
3. +R ch (Red)
4. E Head (Blue)
5. E Head (Yellow)
For Auto-reverse Head
Head wire
connector pcb
Rec/Pb
Head
Erase
Head
1. White
2. Black
3. Red
4. Blue
5. Yellow
For Normal Head

Mechanism B Head Wires Soldering (Dolby B NR version)


Rec/Pb
Head
Head wire
connector pcb
1. +L ch (White)
2. - L ch (Black)
3. +R ch (Red)
4. - R ch (Blue)
5. E Head (Yellow)
6. E Head (Yellow)
For Auto-reverse Head
Head wire
connector pcb
Rec/Pb
Head
Erase
Head
1. White
2. Black
3. Red
4. Blue
5. Yellow
For Normal Head

General

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
ADJUST MOTOR SPEED						
HIGH SPEED	SBC420 (4822 397 30071) 3150Hz	DUBBING	1 or 2 LEFT RIGHT	frequency counter	3622 *	5040Hz ± 0.5%
NORMAL SPEED		PLAY B			3620	3150Hz ± 0.5%
		PLAY A			check	3150Hz -0.8/+1.8%
CHECK WOW & FLUTTER						
DECK A & B	SBC420 (4822 397 30071) 3150Hz	PLAY	1 or 2 LEFT RIGHT	W&F-meter	check only	≤0.4 % DIN or ≤0.35 % CCIR *
ADJUST AZIMUTH						
DECK A & B	SBC420 (4822 397 30071) 10kHz	PLAY FWD	1 or 2 LEFT RIGHT	mV-meter	left hand screw	max. output level & left=right
		PLAY REV #			right hand screw	

Playback

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
ADJUST DOLBY PLAYBACK LEVEL *						
DECK A	TCC-130 (4822 397 30269) 200nWb/m	PLAY	7 or 8 LEFT RIGHT	mV-meter	3641(L), 3642(R)	548mV ±0.5dB
DECK B		PLAY FWD			3635(L), 3636(R)	
		PLAY REV #			Check	548mV ±1dB
CHECK PLAYBACK FREQUENCY RESPONSE						
PB. FREQ. RESP.	SBC420 (4822 397 30071)	PLAY	1 or 2 LEFT RIGHT	mV-meter	Check	limits see fig.1

* For Dolby version only

# For Auto-reverse version only

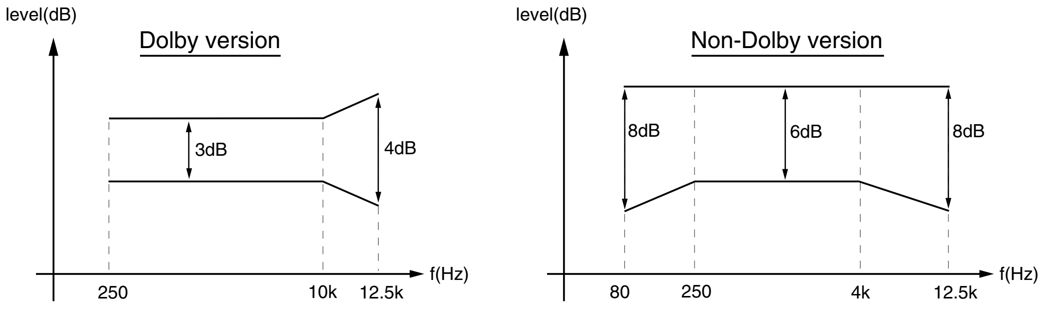


figure. 1

Recording

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
PRE-ADJUST BIAS AND BIAS-SYMMETRY						
DECK B	CrO_2	RECORD	5 or 6 LEFT RIGHT	mV-meter	3773	995mV
					3785 *	left = right
	FERRO				check only	750mV ± 1.5dB
CHECK OVERALL FREQUENCY RESPONSE AND DISTORTION						
Inject 3mV signals 100Hz, 250Hz, 1kHz, 10kHz, 12.5kHz via 3 or 4	CrO_2	RECORD				
	RECORDED CASSETTE	PLAY	1 or 2 LEFT RIGHT	mV-meter	check only	limits see fig.2
Inject 1kHz 8.85mV via 3 or 4	CrO_2	RECORD				
	RECORDED CASSETTE	PLAY	1 or 2 LEFT RIGHT	THD-meter	check only	≤3%
Remark: If high frequencies are not within limits, decrease bias and re-measure. If distortion is too high increase bias and re-measure.						
ADJUST DOLBY RECORD LEVEL *						
Inject 400Hz 8.85mV via 3 or 4	CrO_2	RECORD	9 or 10 LEFT RIGHT	mV-meter	3655 & 3556	420mV
	RECORDED CASSETTE	PLAY	7 or 8 LEFT RIGHT	mV-meter	check	170mV ± 1dB
Remark: If measured value is out, re-adjust record level up or down slightly to attain play level.						

* For Dolby version only

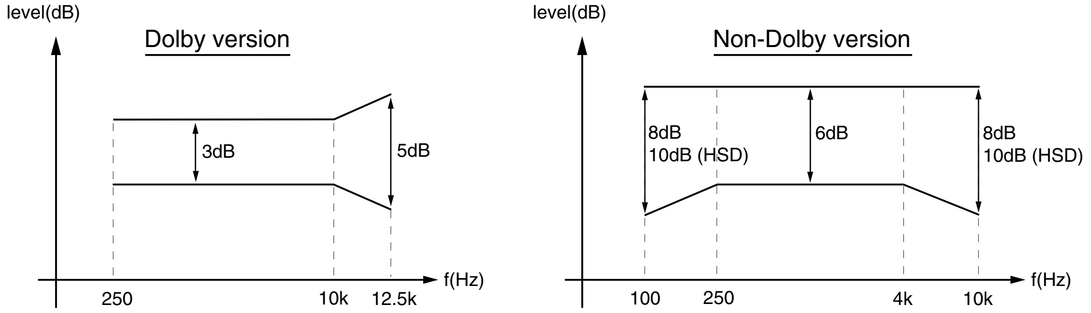
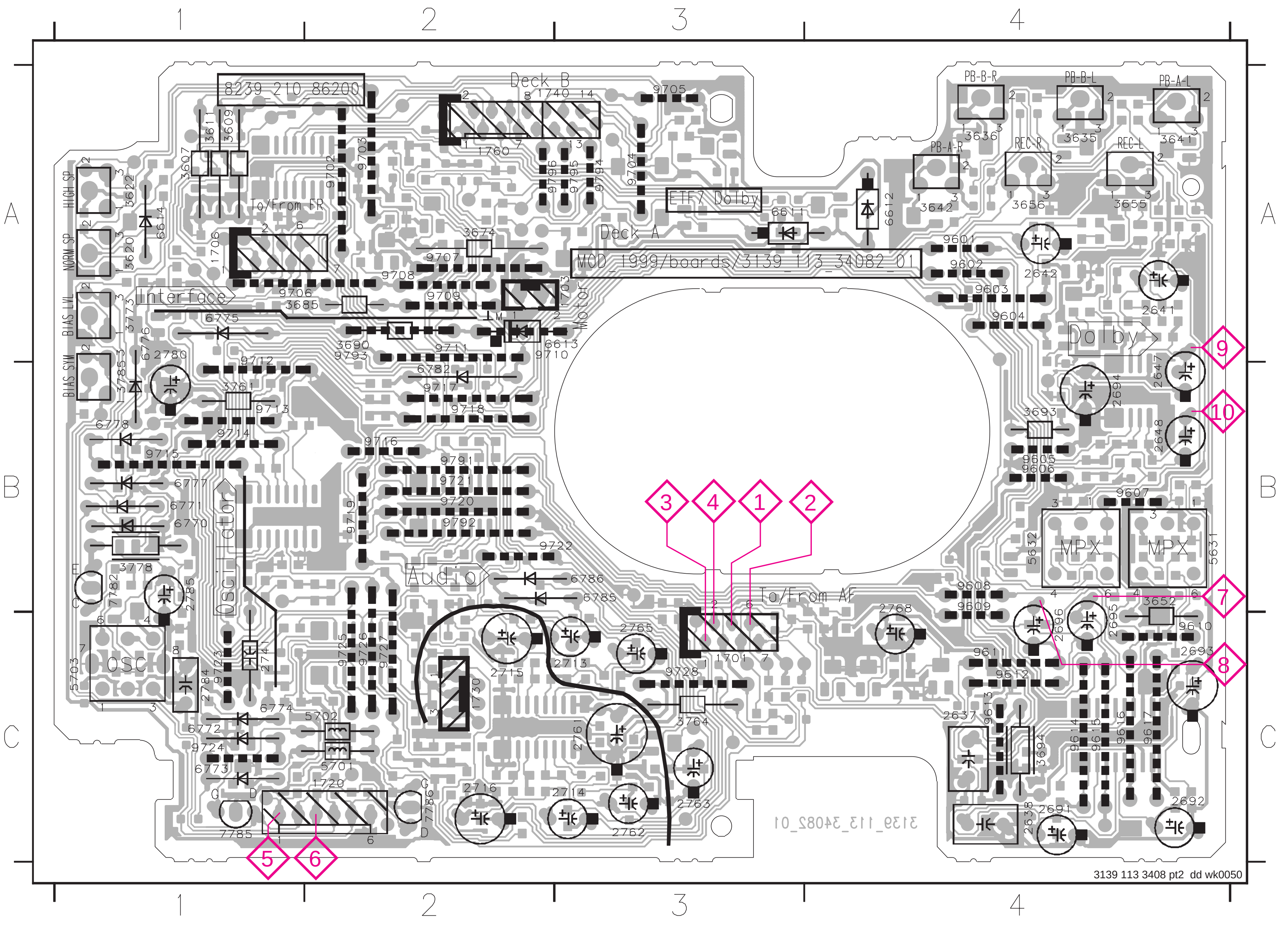


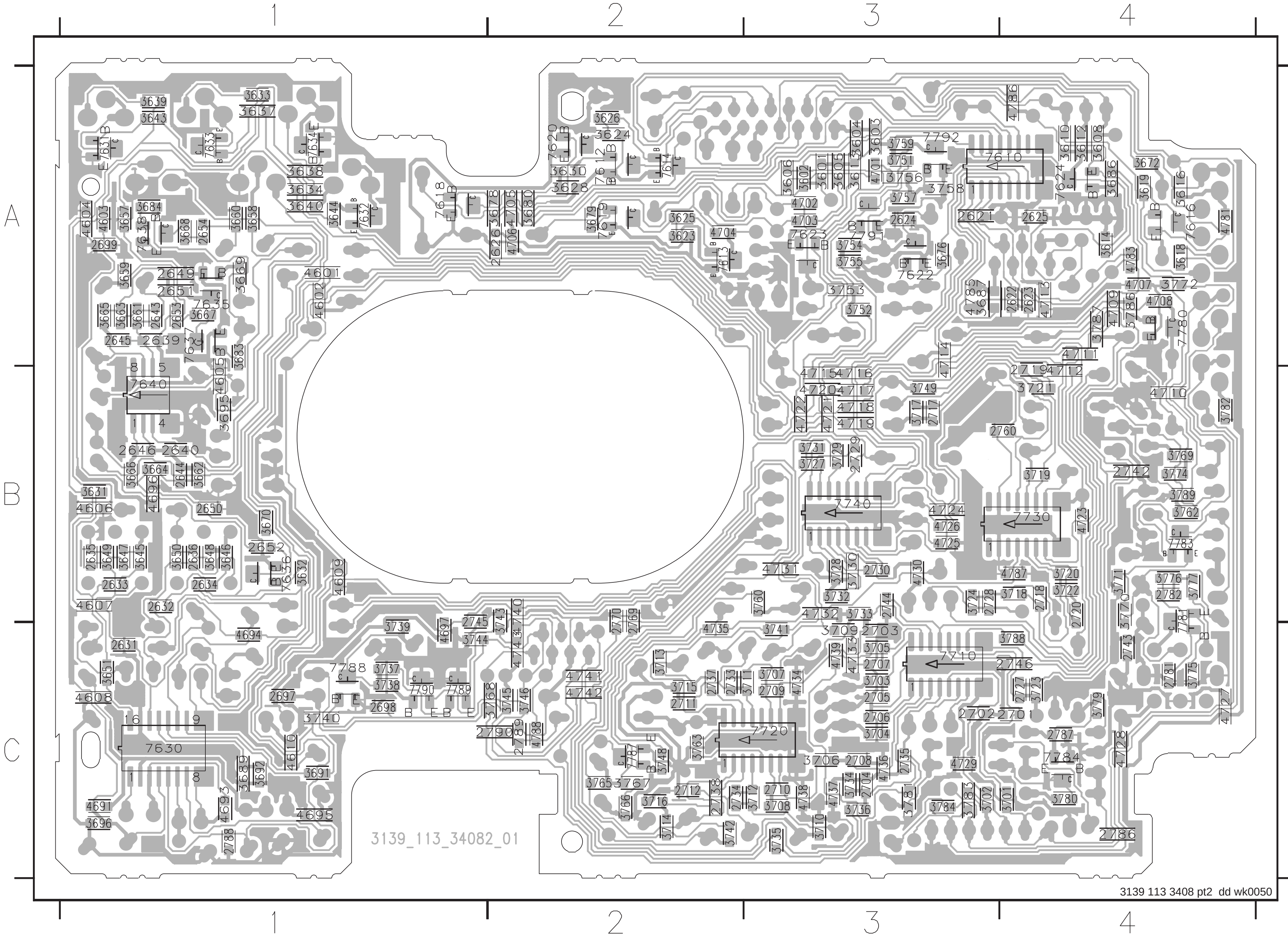
figure. 2

COMPONENT LAYOUT


1
2
3
4
A
B
C
8239 210 86200
Deck B
1740
1760
9705
HIGH SP
NORM SP
BIAS LVL
BIAS SW
To/From FR
Interface
Deck A
ETF7 Dolby
MOD 1999/boards/3139 113 34082 01
Motor
PB-B-R
PB-B-L
PB-A-L
PB-A-R
REC-R
REC-L
Dolby
Oscillator
OSC
Audio
To/From AF
1701
1730
1720
MPX
MPX
5631
5632
3139 113 34082 01
1
2
3
4
5
6
7
8
9
10
3139 113 3408 pt2 dd wk0050

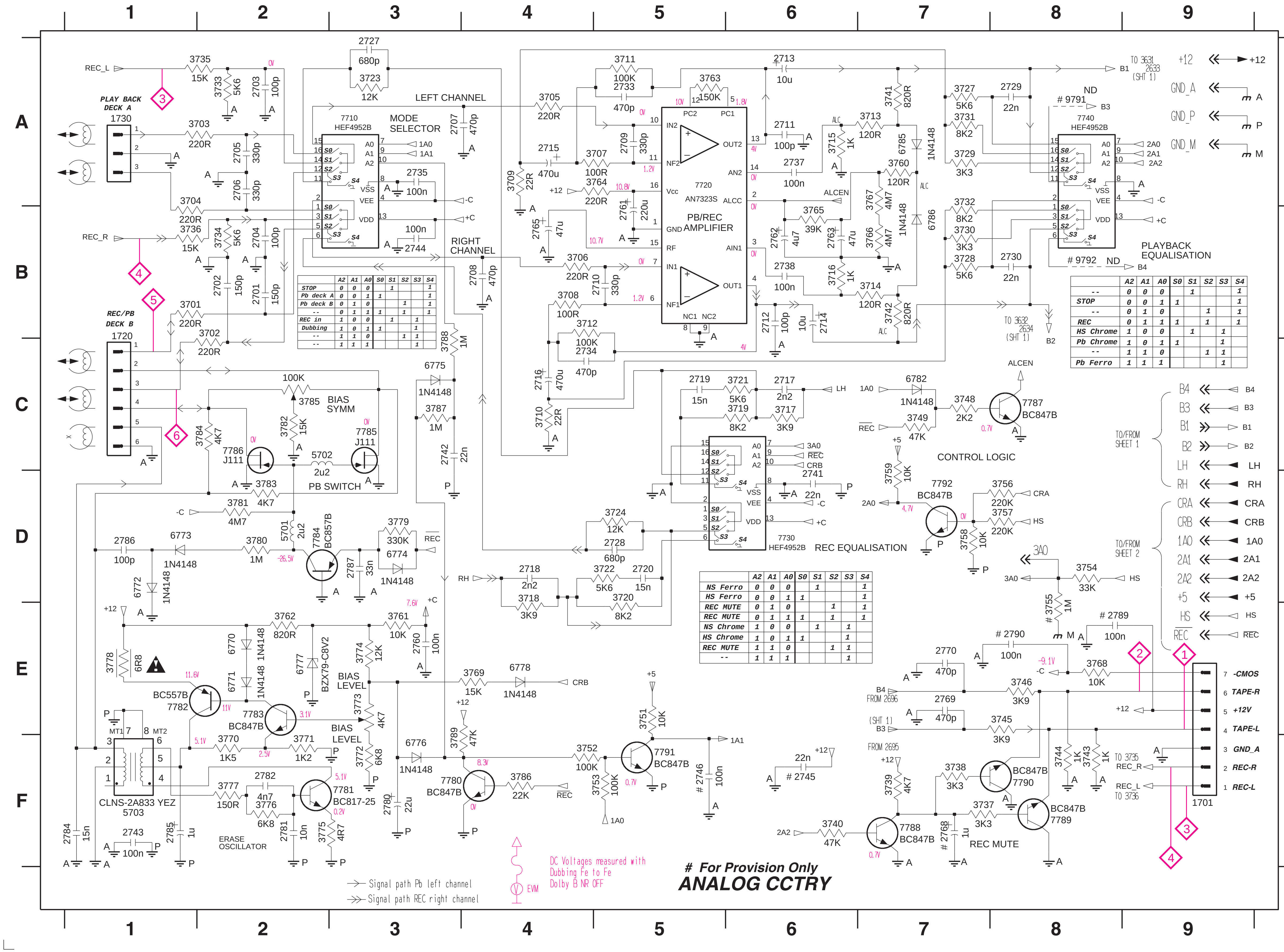
1701	C3	5631	B4	9715	B1
1703	A3	5632	B4	9716	B2
1706	A1	5701	C2	9717	B2
1720	C2	5702	C2	9718	B2
1730	C2	5703	C1	9719	B2
1740	A2	6611	A3	9720	B2
1760	A2	6612	A4	9721	B2
2637	C4	6613	A3	9722	B3
2638	C4	6614	A1	9723	C1
2641	A4	6770	B1	9724	C1
2642	A4	6771	B1	9725	C2
2647	B4	6772	C1	9726	C2
2648	B4	6773	C1	9727	C2
2691	C4	6774	C1	9728	C3
2692	C4	6775	A1	9791	B2
2693	C4	6776	A1	9792	B2
2694	B4	6777	B1	9793	A2
2695	C4	6778	B1	9794	A3
2696	C4	6782	B2	9795	A3
2713	C3	6785	B3	9796	A2
2714	C3	6786	B3		
2715	C2	7782	B1		
2716	C2	7785	C1		
2741	C1	7786	C2		
2761	C3	9601	A4		
2762	C3	9602	A4		
2763	C3	9603	A4		
2765	C3	9604	A4		
2768	B4	9605	B4		
2780	A1	9606	B4		
2784	C1	9607	B4		
2785	B1	9608	B4		
3607	A1	9609	B4		
3609	A1	9610	C4		
3611	A1	9611	C4		
3620	A1	9612	C4		
3622	A1	9613	C4		
3635	A4	9614	C4		
3636	A4	9615	C4		
3641	A4	9616	C4		
3642	A4	9617	C4		
3652	B4	9702	A2		
3655	A4	9703	A2		
3656	A4	9704	A3		
3674	A2	9705	A3		
3685	A1	9706	A1		
3690	A2	9707	A2		
3693	B4	9708	A2		
3694	C4	9709	A2		
3761	B1	9710	A2		
3764	C3	9711	A2		
3773	A1	9712	A1		
3778	B1	9713	B1		
3785	B1	9714	B1		

CHIP LAYOUT



2621	A3
2622	A4
2623	A4
2624	A3
2625	A4
2626	A2
2631	C1
2632	B1
2633	B1
2634	B1
2635	B1
2636	B1
2639	A1
2640	B1
2643	A1
2644	B1
2645	A1
2646	B1
2649	A1
2650	B1
2651	A1
2652	B1
2653	A1
2654	A1
2697	C1
2698	C1
2699	A1
2701	C4
2702	C3
2703	C3
2704	C3
2705	C3
2706	C3
2707	C3
2708	C3
2709	C3
2710	C3
2711	C2
2712	C2
2717	B3
2718	B4
2719	B4
2720	B4
2727	C4
2728	B3
2729	B3
2730	B3
2733	C2
2734	C2
2735	C3
2737	C2
2738	C2
2742	B4
2743	C4
2744	B3
2745	B1
2746	C4
2760	B4
2769	B2
2770	B2
2781	C4
2782	B4
2786	C4
2787	C4
2788	C1
2789	C2
2790	C2
3601	A3
3602	A3
3603	A3
3604	A3
3605	A3
3606	A3
3608	A4
3610	A4
3612	A4
3613	A3
3614	A4
3616	A4
3618	A4
3619	A4
3623	A2
3624	A2
3625	A2
3626	A2
3628	A2
3630	A2
3631	B1
3632	B1
3633	A1
3634	A1
3637	A1
3638	A1
3639	A1
3640	A1
3643	A1
3644	A1
3645	B1
3646	B1
3647	B1
3648	B1
3649	B1
3650	B1
3651	C1
3657	A1
3658	A1
3659	A1
3660	A1
3661	A1
3662	B1
3663	A1
3664	B1
3665	A1
3666	B1
3667	A1
3668	A1
3669	A1
3670	B1
3672	A4
3676	A3
3678	A2
3679	A2
3680	A2
3683	A1
3684	A1
3686	A4
3687	A3
3689	C1
3691	C1
3692	C1
3695	B1
3696	C1
3701	C4
3702	C3
3703	C3
3704	C3
3705	C3
3706	C3
3707	C3
3708	C3
3709	C3
3710	C3
3711	C3
3712	C3
3713	C2
3714	C2
3715	C2
3716	C2
3717	B3
3718	B4
3719	B4
3720	B4
3721	B4
3722	B4
3723	C4
3724	B3
3727	B3
3728	B3
3729	B3
3730	B3
3731	B3
3732	B3
3733	B3
3734	C3
3735	C3
3736	C3
3737	C1
3738	C1
3739	C1
3740	C1
3741	C3
3742	C2
3743	B2
3744	C1
3745	C2
3746	C2
3748	C2
3749	B3
3751	A3
3752	A3
3753	A3
3754	A3
3755	A3
3756	A3
3757	A3
3758	A3
3759	A3
3760	B3
3762	B4
3763	C2
3765	C2
3766	C2
3767	C2
3768	C2
3769	B4
3770	B4
3771	B4
3772	A4
3774	B4
3775	C4
3776	B4
3777	B4
3779	C4
3780	C4
3781	C3
3782	B4
3783	C3
3784	C3
3786	A4
3787	A4
3788	C4
3789	B4
4601	A1
4602	A1
4603	A1
4604	A1
4605	B1
4606	B1
4607	B1
4608	C1
4609	B1
4610	C1
4691	C1
4693	C1
4694	C1
4695	C1
4696	B1
4697	C1
4701	A3
4702	A3
4703	A3
4704	A2
4705	A2
4706	A2
4707	A4
4708	A4
4709	A4
4710	B4
4711	A4
4712	B4
4713	A4
4714	A3
4715	B3
4716	B3
4717	B3
4718	B3
4719	B3
4720	B3
4721	B3
4722	B3
4723	B4
4724	B3
4725	B3
4726	B3
4727	C4
4728	C4
4729	C3
4730	B3
4731	B3
4732	B3
4733	C3
4734	C3
4735	C2
4736	C3
4737	C3
4738	C3
4739	C3
4740	B2
4741	C2
4742	C2
4743	C2
4781	A4
4783	A4
4785	A3
4786	A4
4787	B4
4788	C2
7610	A4
7612	A2
7613	A2
7614	A2
7616	A4
7618	A1
7619	A2
7620	A2
7622	A3
7623	A3
7624	A4
7630	C1
7631	A1
7632	A1
7633	A1
7634	A1
7635	A1
7636	B1
7637	A1
7638	A1
7640	B1
7710	C3
7720	C3
7730	B4
7740	B3
7780	A4
7781	B4
7783	B4
7784	C4
7787	C2
7788	C1
7789	C1
7790	C1
7791	A3
7792	A3

ANALOG CIRCUIT


PLAY BACK DECK A
1730
REC/PB DECK B
1720
REC_L
REC_R
7710 HEF4952B
MODE SELECTOR
LEFT CHANNEL
RIGHT CHANNEL
7720 AN7323S
PB/REC AMPLIFIER
7740 HEF4952B
PLAYBACK EQUALISATION
# 9791 ND
# 9792 ND
BIAS SYMM
PB SWITCH
7786 J111
7785 J111
7784 BC857B
7782 BC557B
7783 BC847B
BIAS LEVEL
5703 CLNS-2A833 YEZ
ERASE OSCILLATOR
7781 BC817-25
7780 BC847B
7791 BC847B
7730 HEF4952B
REC EQUALISATION
CONTROL LOGIC
7787 BC847B
7792 BC847B
7790 BC847B
7789 BC847B
7788 BC847B
REC MUTE
1701
7 -CMOS
6 TAPE-R
5 +12V
4 TAPE-L
3 GND_A
2 REC-R
1 REC-L
TO/FROM SHEET 1
TO/FROM SHEET 2
Signal path Pb left channel
Signal path REC right channel
DC Voltages measured with Dubbing Fe to Fe Dolby B NR OFF
EVM
# For Provision Only
ANALOG CCTRY

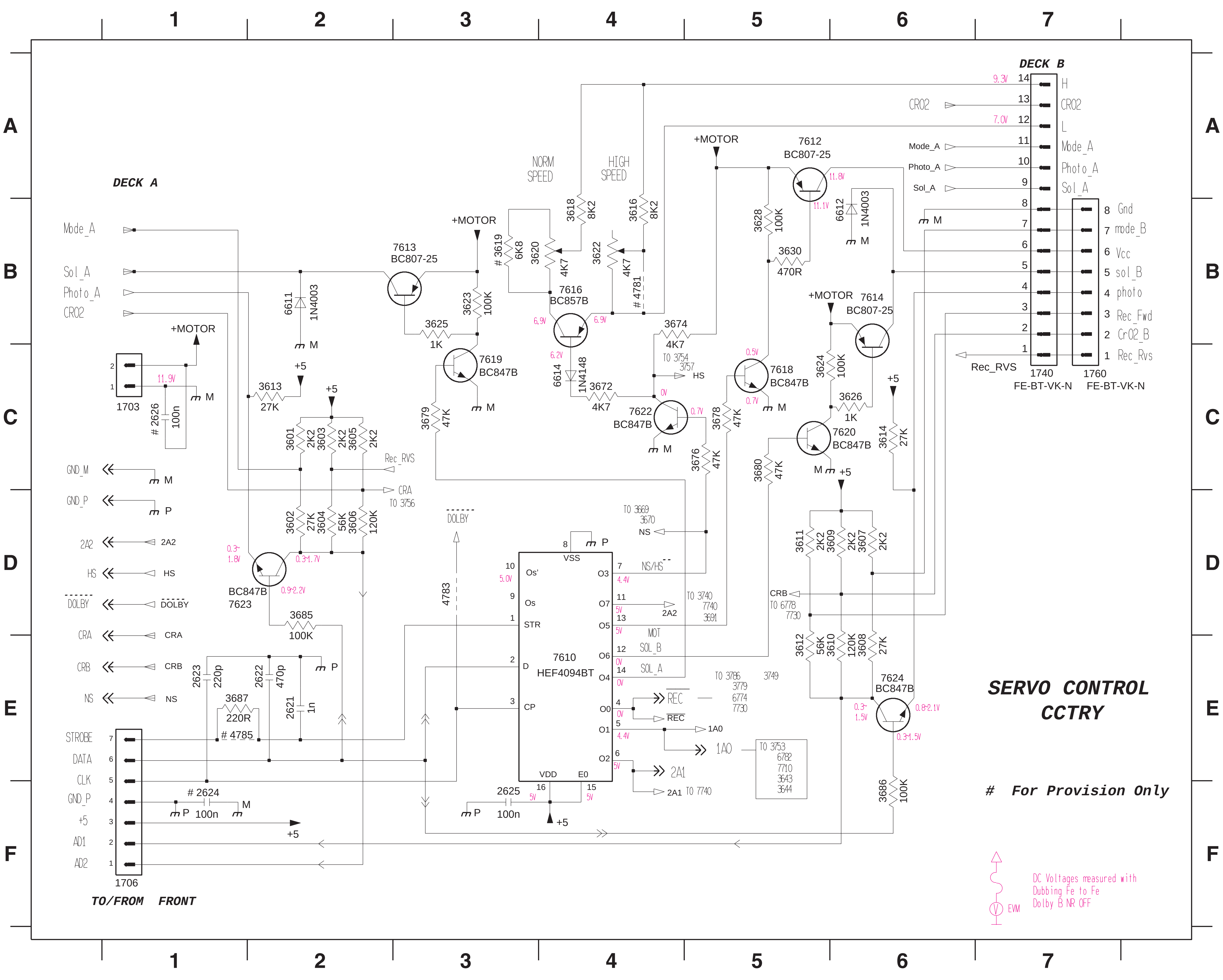
	A2	A1	A0	S0	S1	S2	S3	S4
STOP	0	0	0		1			1
Pb deck A	0	0	1	1				1
Pb deck B	0	1	0			1		1
--	0	1	1	1		1		1
REC in	1	0	0		1		1	
Dubbing	1	0	1	1			1	
--	1	1	0			1	1	
--	1	1	1				1	

	A2	A1	A0	S0	S1	S2	S3	S4
--	0	0	0		1			1
STOP	0	0	1	1				1
--	0	1	0			1		1
REC	0	1	1	1		1		1
HS Chrome	1	0	0		1		1	
Pb Chrome	1	0	1	1			1	
--	1	1	0			1	1	
Pb Ferro	1	1	1				1	

	A2	A1	A0	S0	S1	S2	S3	S4
NS Ferro	0	0	0		1			1
HS Ferro	0	0	1	1				1
REC MUTE	0	1	0			1		1
REC MUTE	0	1	1	1		1		1
NS Chrome	1	0	0		1		1	
HS Chrome	1	0	1	1			1	
REC MUTE	1	1	0			1	1	
--	1	1	1				1	

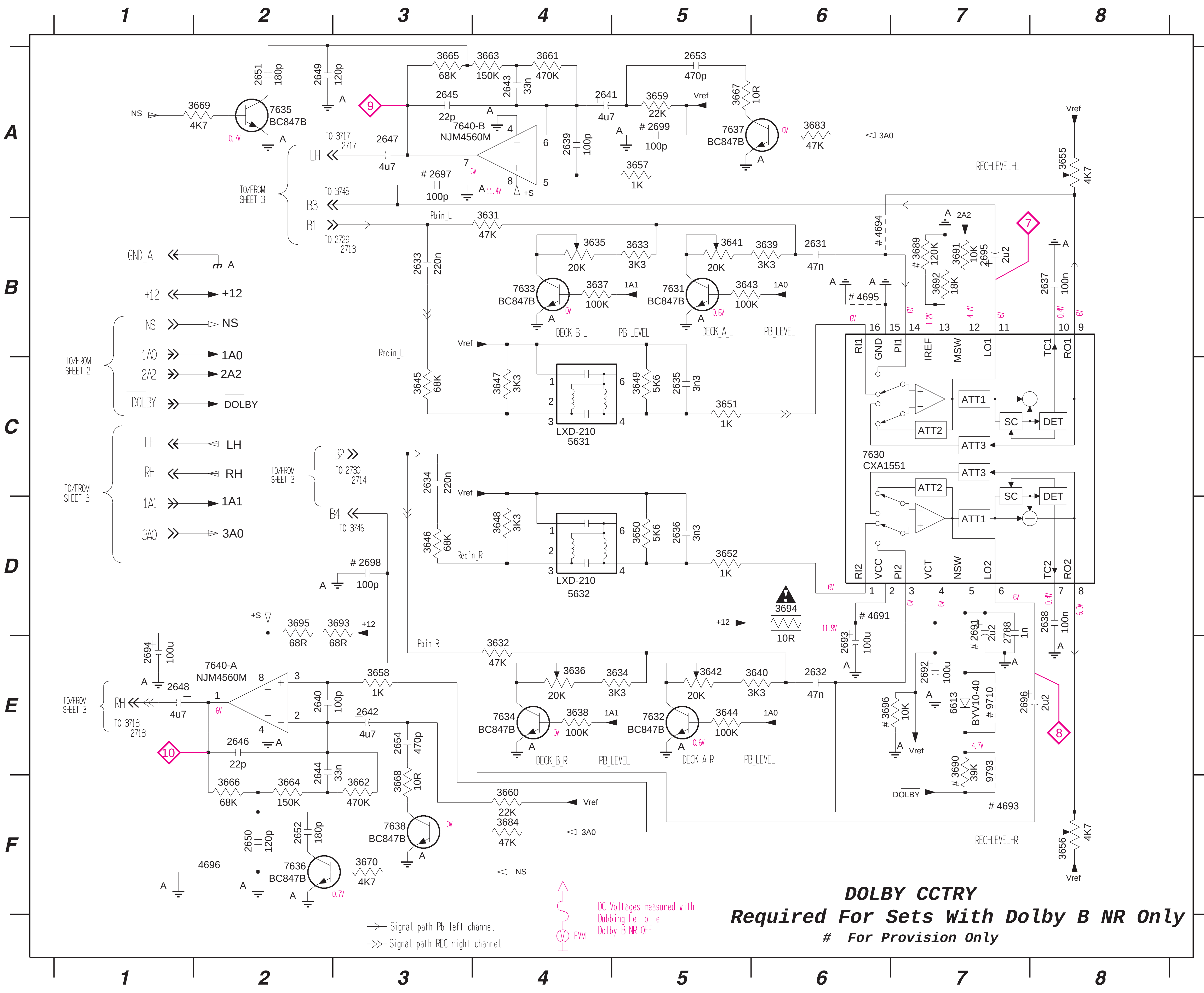
1701	F9
1720	C1
1730	A1
2701	B2
2702	B2
2703	A2
2704	B2
2705	A2
2706	A2
2707	A3
2708	B4
2709	A5
2710	B5
2711	A6
2712	B6
2713	A6
2714	B6
2715	A4
2716	C4
2717	C6
2718	D4
2719	C5
2720	D5
2727	A3
2728	D5
2729	A8
2730	B8
2733	A5
2734	C4
2735	A3
2737	A6
2738	B6
2741	D6
2742	C3
2743	F1
2744	B3
2745	F6
2746	F5
2760	E3
2761	B5
2762	B6
2763	B6
2765	B4
2768	F7
2769	E7
2770	E7
2780	F3
2781	F2
2782	F2
2784	F1
2785	F1
2786	D1
2787	D3
2789	E8
2790	E8
3701	B1
3702	B2
3703	A2
3704	A1
3705	A4
3706	B4
3707	A5
3708	B4
3709	A4
3710	C4
3711	A5
3712	B4
3713	A7
3714	B7
3715	A6
3716	B6
3717	C6
3718	D4
3719	C6
3720	D5
3721	C6
3722	D5
3723	A3
3724	D5
3727	A7
3728	B7
3729	A7
3730	B7
3731	A7
3732	A7
3733	A2
3734	B2
3735	A2
3736	B1
3737	F7
3738	F7
3739	F7
3740	F6
3741	A7
3742	B7
3743	F8
3744	F8
3745	E8
3746	E8
3748	C7
3749	C7
3751	E5
3752	F4
3753	F5
3754	D8
3755	E8
3756	D8
3757	D8
3758	D7
3759	D7
3760	A7
3761	E3
3762	E2
3763	A5
3764	A5
3765	B6
3766	B7
3767	A7
3768	E8
3769	E4
3770	F2
3771	F2
3772	F3
3773	E3
3774	E3
3775	F2
3776	F2
3777	F2
3778	E1
3779	D3
3780	D2
3781	D2
3782	C2
3783	D2
3784	C2
3785	C2
3786	F4
3787	C3
3788	C3
3789	F3
5701	D2
5702	C2
5703	F1
6770	E2
6771	E2
6772	D1
6773	D1
6774	D3
6775	C3
6776	F3
6777	E2
6778	E4
6782	C7
6785	A7
6786	B7
7710	A3
7720	A5
7730	D6
7740	A8
7780	F4
7781	F3
7782	E1
7783	E2
7784	D2
7785	C3
7786	C2
7787	C8
7788	F7
7789	F8
7790	F8
7791	F5
7792	D7
9791	A8
9792	B8

SERVO CONTROL CIRCUIT


DECK A
DECK B
Mode_A
Sol_A
Photo_A
CR02
+MOTOR
1703
# 2626 100n
11.9V
M
6611 1N4003
7613 BC807-25
3613 27K
+5
3601 2K2
3603 2K2
3605 2K2
Rec_RVS
CRA TO 3756
3602 27K
3604 56K
3606 120K
BC847B 7623
3685 100K
3625 1K
7619 BC847B
3679 47K
3623 100K
# 3619 6K8
3620 4K7
NORM SPEED
HIGH SPEED
3618 8K2
3616 8K2
3622 4K7
# 4781
7616 BC857B
6614 1N4148
3672 4K7
3674 4K7
TO 3754 3757
HS
7622 BC847B
3676 47K
3678 47K
7612 BC807-25
3628 100K
3630 470R
6612 1N4003
7618 BC847B
7614 BC807-25
3624 100K
3626 1K
7620 BC847B
3680 47K
3614 27K
3611 2K2
3609 2K2
3607 2K2
CRB TO 6778 7730
3612 56K
3610 120K
3608 27K
7624 BC847B
3686 100K
1740 FE-BT-VK-N
1760 FE-BT-VK-N
H
CR02
L
Mode_A
Photo_A
Sol_A
8 Gnd
7 mode_B
6 Vcc
5 sol_B
4 photo
3 Rec_Fwd
2 Cr02_B
1 Rec_Rvs
Rec_RVS
GND_M
GND_P
2A2
HS
DOLBY
CRA
CRB
NS
STROBE
DATA
CLK
GND_P
+5
AD1
AD2
1706
TO/FROM FRONT
2623 220p
2622 470p
2621 1n
3687 220R
# 4785
# 2624 100n
4783
7610 HEF4094BT
Os'
Os
STR
D
CP
VSS
VDD
E0
O3
O7
O5
O6
O4
O0
O1
O2
TO 3669 3670
NS
NS/HS
TO 3740 7740 3691
2A2
MOT
SOL_B
SOL_A
TO 3786 3779 6774 7730
3749
REC
1A0
TO 3753 6782 7710 3643 3644
2A1
2A1 TO 7740
2625 100n
SERVO CONTROL CCTRY
# For Provision Only
DC Voltages measured with Dubbing Fe to Fe Dolby B NR OFF
EVM

1703	C1
1706	F1
1740	C7
1760	C7
2621	E2
2622	E2
2623	E1
2624	F1
2625	F3
2626	C1
3601	C2
3602	D2
3603	C2
3604	D2
3605	C2
3606	D2
3607	D6
3608	E6
3609	D6
3610	E6
3611	D5
3612	E5
3613	C2
3614	C6
3616	B4
3618	B4
3619	B3
3620	B3
3622	B4
3623	B3
3624	C5
3625	B3
3626	C6
3628	B5
3630	B5
3672	C4
3674	B4
3676	C5
3678	C5
3679	C3
3680	C5
3685	D2
3686	F6
3687	E1
4781	B4
4783	D3
4785	E1
6611	B2
6612	B6
6614	C4
7610	E4
7612	A5
7613	B2
7614	B6
7616	B4
7618	C5
7619	C3
7620	C6
7622	C4
7623	D1
7624	E6

DOLBY CIRCUIT


1
2
3
4
5
6
7
8
A
B
C
D
E
F
NS
3669
4K7
7635
BC847B
0.7V
A
2651
180p
2649
120p
3665
68K
3663
150K
3661
470K
2643
33n
2653
470p
2645
22p
9
7640-B
NJM4560M
2641
4u7
3659
22K
Vref
3667
10R
# 2699
100p
7637
BC847B
0V
3683
47K
3A0
TO 3717
2717
LH
2647
4u7
2639
100p
3657
1K
REC-LEVEL-L
3655
4K7
TO/FROM SHEET 3
TO 3745
# 2697
100p
11.4V
+S
B3
B1
TO 2729
2713
Pbin_L
3631
47K
GND_A
+12
NS
1A0
2A2
DOLBY
TO/FROM SHEET 2
2633
220n
3635
20K
3633
3K3
3641
20K
3639
3K3
2631
47n
# 4694
# 3689
120K
3691
10K
2695
2u2
7
2637
100n
7633
BC847B
3637
100K
1A1
7631
BC847B
3643
100K
# 4695
# 3692
18K
DECK_B_L
PB_LEVEL
DECK_A_L
Recin_L
Vref
3645
68K
3647
3K3
3649
5K6
2635
3n3
3651
1K
LXD-210
5631
RI1
GND
PI1
IREF
MSW
LO1
TC1
RO1
ATT1
ATT2
ATT3
SC
DET
7630
CXA1551
RI2
VCC
PI2
VCT
NSW
LO2
TC2
RO2
LH
RH
1A1
3A0
TO/FROM SHEET 3
B2
TO 2730
2714
2634
220n
B4
TO 3746
3646
68K
3648
3K3
3650
5K6
2636
3n3
3652
1K
LXD-210
5632
Recin_R
# 2698
100p
3694
10R
11.9V
# 4691
2693
100u
2638
100n
# 2691
2u2
2788
1n
2692
100u
+S
3695
68R
3693
68R
2694
100u
7640-A
NJM4560M
3658
1K
Pbin_R
3632
47K
3636
20K
3634
3K3
3642
20K
3640
3K3
2632
47n
TO/FROM SHEET 3
RH
TO 3718
2718
2648
4u7
2640
100p
2642
4u7
7634
BC847B
3638
100K
7632
BC847B
3644
100K
# 3696
10K
6613
BYV10-40
# 9710
2696
2u2
8
10
2646
22p
2654
470p
DECK_B_R
PB_LEVEL
DECK_A_R
3666
68K
3664
150K
2644
33n
3662
470K
3668
10R
3660
22K
3684
47K
# 3690
39K
9793
DOLBY
# 4693
REC-LEVEL-R
3656
4K7
2650
120p
2652
180p
7638
BC847B
4696
7636
BC847B
3670
4K7
Signal path Pb left channel
Signal path REC right channel
EVM
DC Voltages measured with
Dubbing Fe to Fe
Dolby B NR OFF

DOLBY CCTRY

Required For Sets With Dolby B NR Only

# For Provision Only

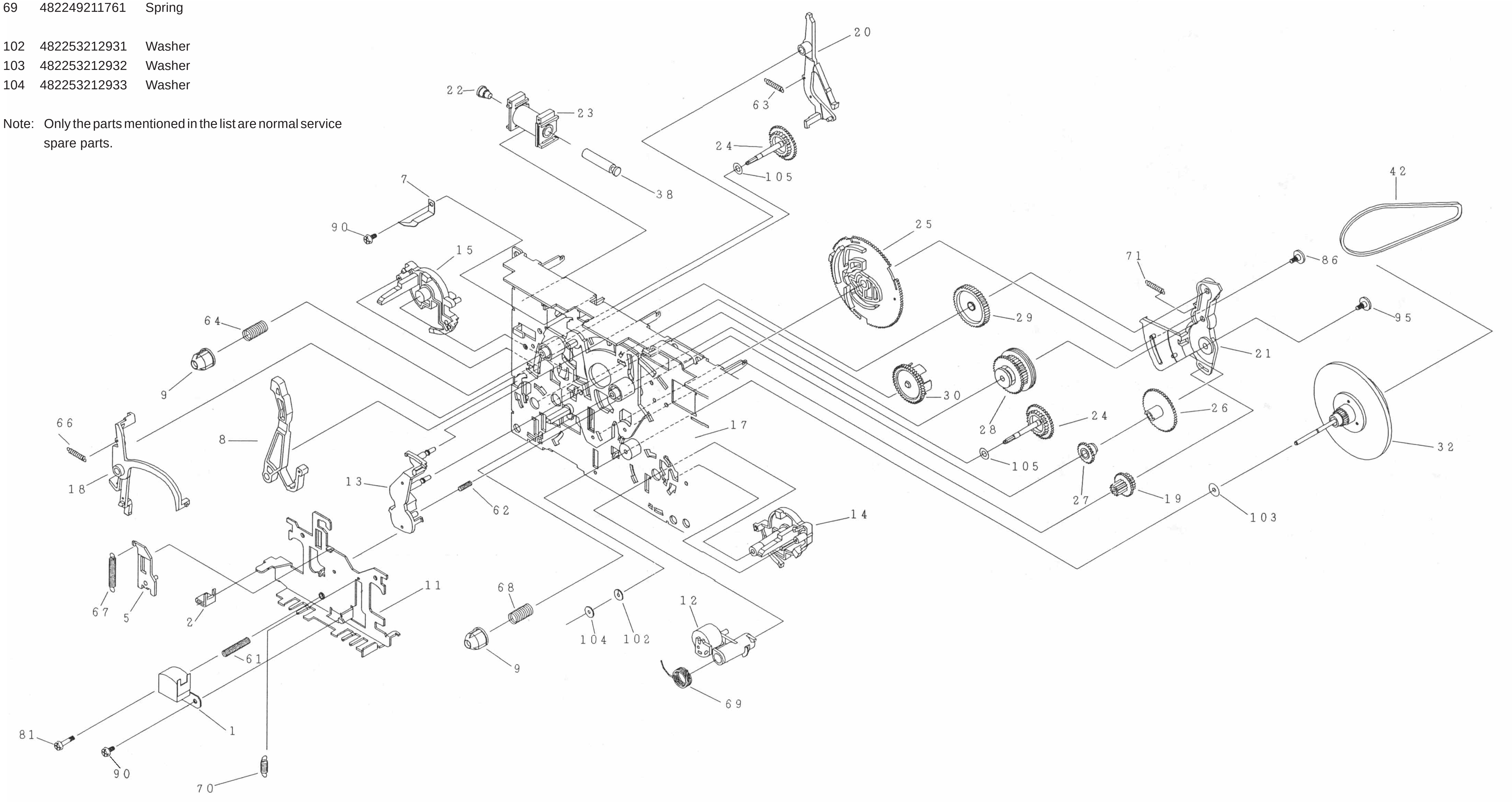
2631	B6
2632	E6
2633	B3
2634	C3
2635	C5
2636	D5
2637	B8
2638	D8
2639	A4
2640	E2
2641	A4
2642	E3
2643	A4
2644	E2
2645	A3
2646	E2
2647	A3
2648	E1
2649	A2
2650	F2
2651	A2
2652	F2
2653	A5
2654	E3
2691	D7
2692	E7
2693	E6
2694	E1
2695	B7
2696	E7
2697	A3
2698	D3
2699	A5
2788	D7
3631	B4
3632	E4
3633	B5
3634	E5
3635	B4
3636	E4
3637	B4
3638	E4
3639	B6
3640	E6
3641	B5
3642	E5
3643	B5
3644	E5
3645	C3
3646	D3
3647	C4
3648	D4
3649	C5
3650	D5
3651	C5
3652	D5
3655	A8
3656	F8
3657	A5
3658	E3
3659	A5
3660	F4
3661	A4
3662	F3
3663	A4
3664	F2
3665	A3
3666	F2
3667	A5
3668	F3
3669	A2
3670	F3
3683	A6
3684	F4
3689	B7
3690	E7
3691	B7
3692	B7
3693	D3
3694	D6
3695	D2
3696	E6
4691	D6
4693	F7
4694	B6
4695	B6
4696	F2
5631	C4
5632	D4
6613	E7
7630	C6
7631	B5
7632	E5
7633	B4
7634	E4
7635	A2
7636	F2
7637	A5
7638	F3
7640-A	E2
7640-B	A4
9710	E7
9793	E7

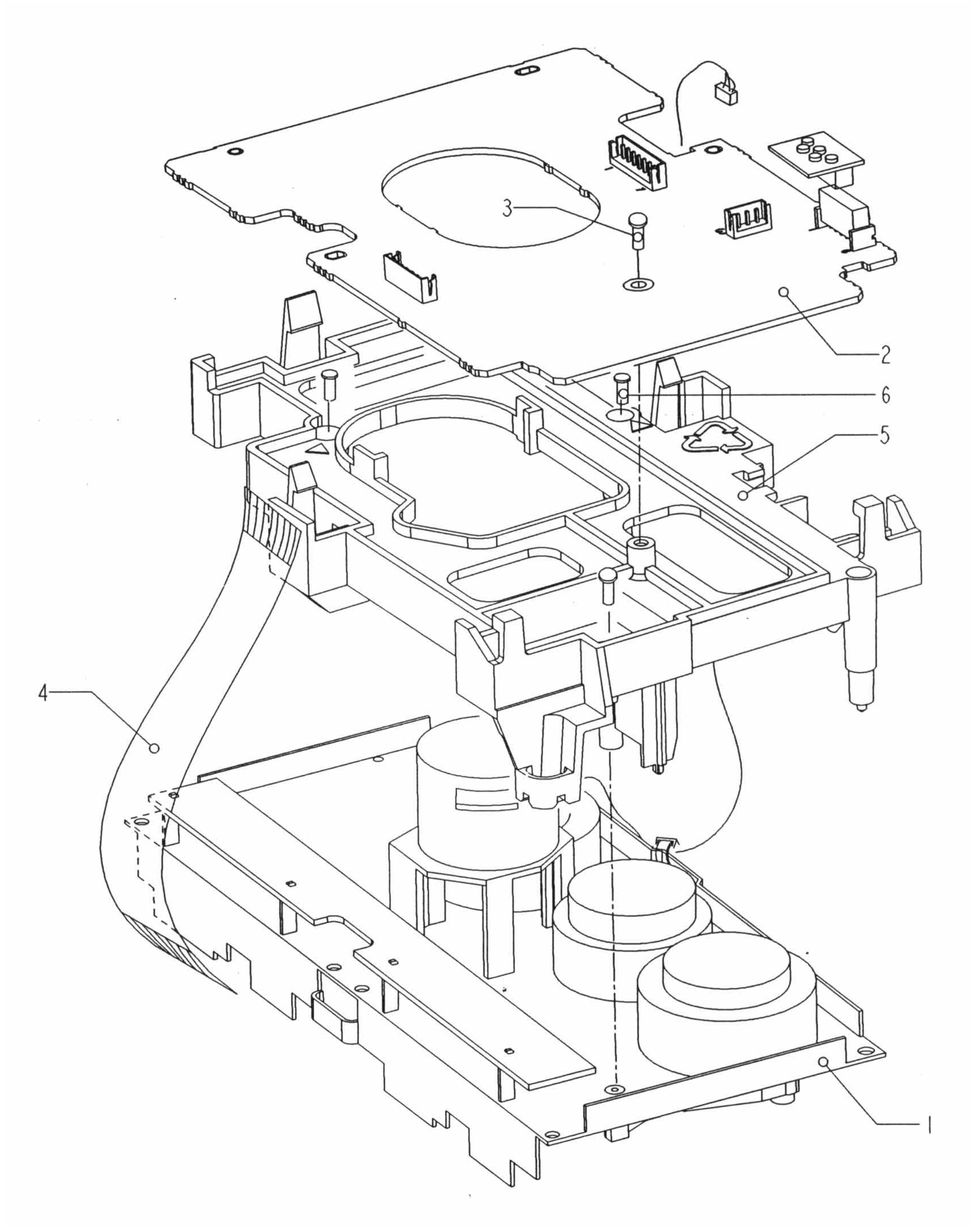
TAPE MECHANISM A - PLAY

MECHANICAL PARTS - PLAY MECHANISM

1	996500002313	Play Head (Non-Autoreverse deck)
1	996500002321	Play Head (Autoreverse deck)
12	482240210972	Pinch Arm Assembly R
23	996500002314	Coil Assembly
32	482252811209	Flywheel Assembly RV
42	996500002315	Belt AF (Autoreverse deck)
42	996500002718	Belt AF (Non-autoreverse deck)
69	482249211761	Spring
102	482253212931	Washer
103	482253212932	Washer
104	482253212933	Washer

Note: Only the parts mentioned in the list are normal service spare parts.

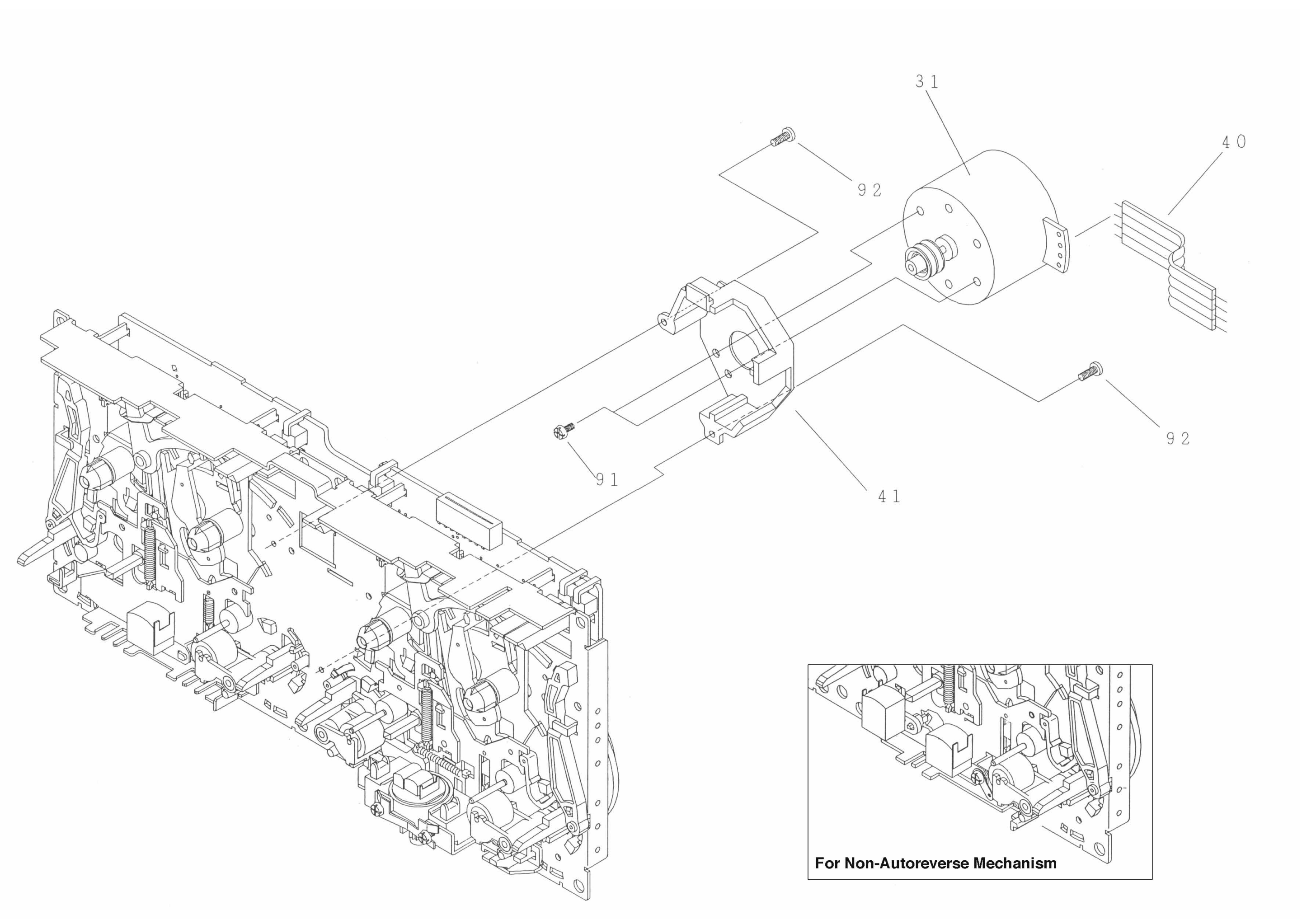

20
22
23
63
24
105
38
42
7
90
25
15
71
86
29
64
95
21
9
30
17
28
24
26
66
8
32
105
13
27
19
18
62
103
14
11
68
12
67
5
2
104
102
9
61
69
81
1
90
70



TAPE MODULE EXPLODED VIEW

1	313911877150	Autoreverse Mech. CWE44FR03
3	-	Screw D3 x 10
4	313911034080	Flex Cable 14 pin 7,5 cm
6	-	Screw M2 x 16

Note: Only the parts mentioned in this list are normal service spare parts.


31
40
92
92
91
41
For Non-Autoreverse Mechanism

TAPE MECHANISM - MOTOR EXPLODED VIEW

31	996500003006	Motor Assembly
91	-	Screw M2,6 x 5
92	-	Screw M2 x 5

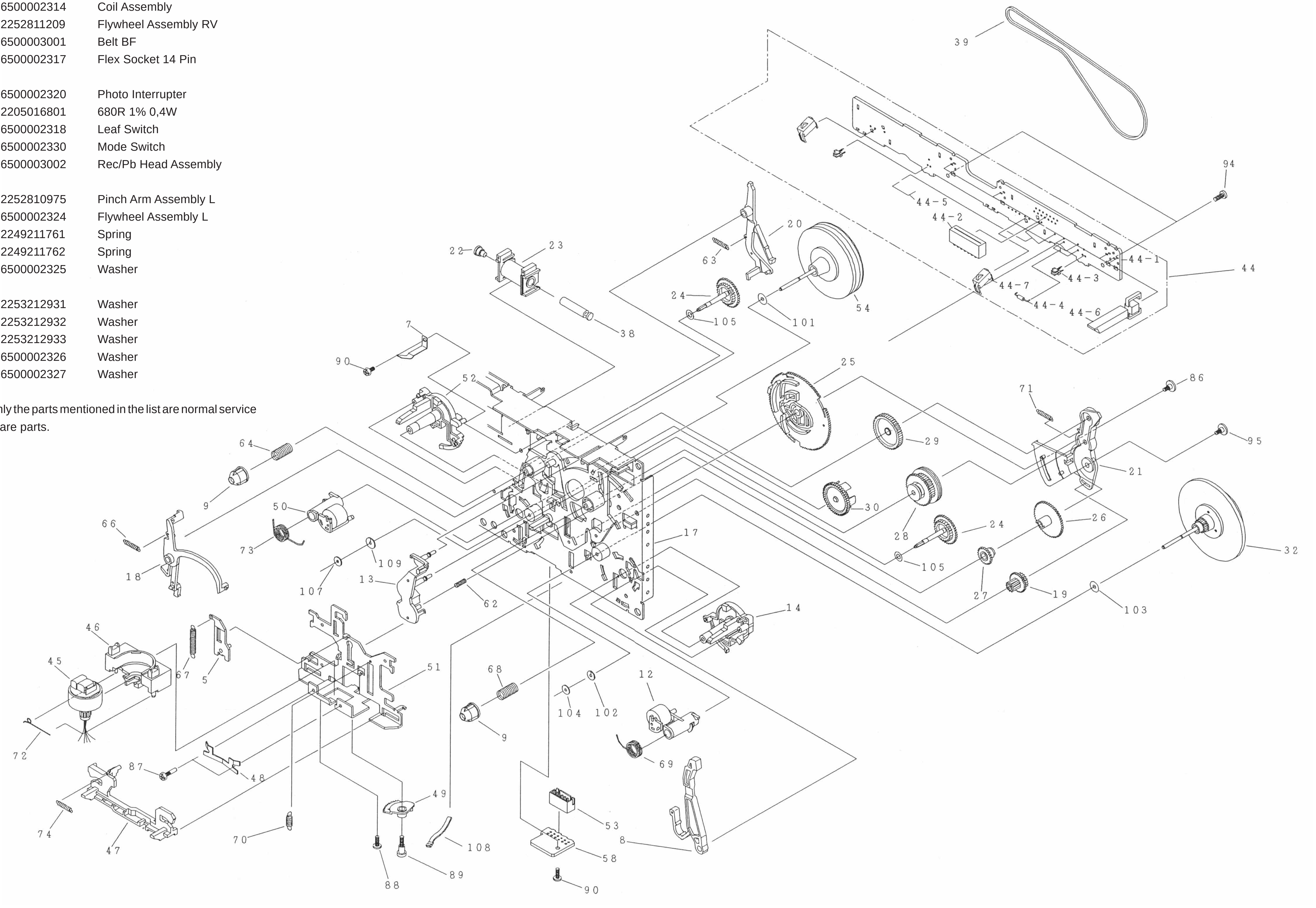
Note: Only the parts mentioned in this list are normal service spare parts.

TAPE MECHANISM B - RECORD/PLAYBACK *(Autoreverse version)*

MECHANICAL PARTS - REC/PB MECHANISM

12	482240210972	Pinch Arm Assembly R
23	996500002314	Coil Assembly
32	482252811209	Flywheel Assembly RV
39	996500003001	Belt BF
44-2	996500002317	Flex Socket 14 Pin
44-3	996500002320	Photo Interrupter
44-4	482205016801	680R 1% 0,4W
44-6	996500002318	Leaf Switch
44-7	996500002330	Mode Switch
45	996500003002	Rec/Pb Head Assembly
50	482252810975	Pinch Arm Assembly L
54	996500002324	Flywheel Assembly L
69	482249211761	Spring
73	482249211762	Spring
101	996500002325	Washer
102	482253212931	Washer
103	482253212932	Washer
104	482253212933	Washer
107	996500002326	Washer
109	996500002327	Washer

Note: Only the parts mentioned in the list are normal service spare parts.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ELECTRICAL PARTS LIST - ETF7 DOLBY BOARD

MISCELLANEOUS

1701	482226710953	Flex Connector 7P
1706	482226710953	Flex Connector 7P
1740	482226751255	Flex Connector 14P

CAPACITORS

2621	532212231647	1nF 10% 63V
2622	532212234099	470pF 10% 63V
2623	482212233575	220pF 5% 63V
2625	482212614585	100nF 10% 50V
2631	482212613751	47nF 10% 63V
2632	482212613751	47nF 10% 63V
2633	482212613473	220nF +80/-20% 50V
2634	482212613473	220nF +80/-20% 50V
2635	482212233891	3,3nF 10% 63V
2636	482212233891	3,3nF 10% 63V
2637	532212142386	100nF 5% 63V
2638	532212142386	100nF 5% 63V
2639	532212232531	100pF 5% 50V
2640	532212232531	100pF 5% 50V
2641	482212440769	4,7µF 20% 100V
2642	482212440769	4,7µF 20% 100V
2643	482212612105	33nF 5% 50V
2644	482212612105	33nF 5% 50V
2645	532212232658	22pF 5% 50V
2646	532212232658	22pF 5% 50V
2647	482212440769	4,7µF 20% 100V
2648	482212440769	4,7µF 20% 100V
2649	532212233861	120pF 10% 50V
2650	532212233861	120pF 10% 50V
2651	482212610326	180pF 5% 63V
2652	482212610326	180pF 5% 63V
2653	532212234099	470pF 10% 63V
2654	532212234099	470pF 10% 63V
2692	482212441584	100µF 20% 10V
2693	482212440207	100µF 20% 25V
2694	482212440207	100µF 20% 25V
2695	482212422652	2,2µF 20% 50V
2696	482212422652	2,2µF 20% 50V
2701	532212233538	150pF 2% 63V
2702	532212233538	150pF 2% 63V
2703	532212232531	100pF 5% 50V
2704	532212232531	100pF 5% 50V
2705	532212231863	330pF 5% 63V
2706	532212231863	330pF 5% 63V
2707	532212234099	470pF 10% 63V
2708	532212234099	470pF 10% 63V
2709	532212231863	330pF 5% 63V
2710	532212231863	330pF 5% 63V
2711	532212232531	100pF 5% 50V
2712	532212232531	100pF 5% 50V
2713	482212440248	10µF 20% 63V
2714	482212440248	10µF 20% 63V
2715	482212480195	470µF 20% 10V
2716	482212480195	470µF 20% 10V
2717	482212233127	2,2nF 10% 63V
2718	482212233127	2,2nF 10% 63V
2719	482212613188	15nF 5% 63V
2720	482212613188	15nF 5% 63V
2727	482212232535	680pF 10% 63V
2728	482212232535	680pF 10% 63V
2729	532212232654	22nF 10% 63V
2730	532212232654	22nF 10% 63V
2733	532212234099	470pF 10% 63V
2734	532212234099	470pF 10% 63V
2735	482212614585	100nF 10% 50V
2737	482212614585	100nF 10% 50V
2738	482212614585	100nF 10% 50V
2741	482212611585	22nF +80/-20% 25V
2742	532212232654	22nF 10% 63V
2743	482212614585	100nF 10% 50V
2744	482212614585	100nF 10% 50V
2760	482212614585	100nF 10% 50V
2761	482212480144	220µF 20% 25V
2762	482212440769	4,7µF 20% 100V
2763	482212440433	47µF 20% 25V
2765	482212440433	47µF 20% 25V
2769	532212234099	470pF 10% 63V
2770	532212234099	470pF 10% 63V
2780	482212481151	22µF 50V
2781	482212233177	10nF 20% 50V
2782	532212610223	4,7nF 10% 63V
2784	482212151305	15nF 10% 50V
2785	482212421913	1µF 20% 63V
2786	532212232531	100pF 5% 50V
2787	482212612105	33nF 5% 50V
2788	532212231647	1nF 10% 63V

RESISTORS

3601	482211711449	2k2 1% 0,1W
3602	482205120273	27k 5% 0,1W
3603	482211711449	2k2 1% 0,1W
3604	482211711148	56k 1% 0,1W
3605	482211711449	2k2 1% 0,1W
3606	482205120124	120k 5% 0,1W
3607	482211652256	2k2 5% 0,5W
3608	482205120273	27k 5% 0,1W
3609	482211652256	2k2 5% 0,5W
3610	482205120124	120k 5% 0,1W
3611	482211652256	2k2 5% 0,5W
3612	482211711148	56k 1% 0,1W
3613	482205120273	27k 5% 0,1W
3614	482205120273	27k 5% 0,1W
3616	482205120822	8k2 5% 0,1W
3618	482205120822	8k2 5% 0,1W

ELECTRICAL PARTS LIST - ETF7 DOLBY BOARD

3620	482210012227	4k7 30% 0,1W
3622	482210012227	4k7 30% 0,1W
3623	482211710837	100k 1% 0,1W
3624	482211710837	100k 1% 0,1W
3625	482205110102	1k 2% 0,25W
3626	482205110102	1k 2% 0,25W
3628	482211710837	100k 1% 0,1W
3630	482205120471	470R 5% 0,1W
3631	482211710834	47k 1% 0,1W
3632	482211710834	47k 1% 0,1W
3633	482205120332	3k3 5% 0,1W
3634	482205120332	3k3 5% 0,1W
3635	482210011771	20k 30% 0,1W
3636	482210011771	20k 30% 0,1W
3637	482211710837	100k 1% 0,1W
3638	482211710837	100k 1% 0,1W
3639	482205120332	3k3 5% 0,1W
3640	482205120332	3k3 5% 0,1W
3641	482210011771	20k 30% 0,1W
3642	482210011771	20k 30% 0,1W
3643	482211710837	100k 1% 0,1W
3644	482211710837	100k 1% 0,1W
3645	482205120683	68k 5% 0,1W
3646	482205120683	68k 5% 0,1W
3647	482205120332	3k3 5% 0,1W
3648	482205120332	3k3 5% 0,1W
3649	482205120562	5k6 5% 0,1W
3650	482205120562	5k6 5% 0,1W
3651	482205110102	1k 2% 0,25W
3652	482205011002	1k 1% 0,4W
3655	482210012227	4k7 30% 0,1W
3656	482210012227	4k7 30% 0,1W
3657	482205110102	1k 2% 0,25W
3658	482205110102	1k 2% 0,25W
3659	482205120223	22k 5% 0,1W
3660	482205120223	22k 5% 0,1W
3661	482205120474	470k 5% 0,1W
3662	482205120474	470k 5% 0,1W
3663	482205120154	150k 5% 0,1W
3664	482205120154	150k 5% 0,1W
3665	482205120683	68k 5% 0,1W
3666	482205120683	68k 5% 0,1W
3667	482205120109	10R 5% 0,1W
3668	482205120109	10R 5% 0,1W
3669	482205120472	4k7 5% 0,1W
3670	482205120472	4k7 5% 0,1W
3672	482205120472	4k7 5% 0,1W
3674	482211652283	4k7 5% 0,5W
3676	482211710834	47k 1% 0,1W
3678	482211710834	47k 1% 0,1W
3679	482211710834	47k 1% 0,1W
3680	482211710834	47k 1% 0,1W
3683	482211710834	47k 1% 0,1W
3684	482211710834	47k 1% 0,1W
3685	482211652234	100k 5% 0,5W
3686	482211710837	100k 1% 0,1W
3687	482211711503	220R 1% 0,1W
3691	482211710833	10k 1% 0,1W
3692	482211710965	18k 1% 0,1W
3693	482211652199	68R 5% 0,5W
3694	482205210109 ⚠	10R 5% 0,33W
3695	482211712521	68R 1% 0,1W
3701	482211711503	220R 1% 0,1W
3702	482211711503	220R 1% 0,1W
3703	482211711503	220R 1% 0,1W
3704	482211711503	220R 1% 0,1W
3705	482211711503	220R 1% 0,1W
3706	482211711503	220R 1% 0,1W
3707	482205120101	100R 5% 0,1W
3708	482205120101	100R 5% 0,1W
3709	482205120229	22R 5% 0,1W
3710	482205120229	22R 5% 0,1W
3711	482211710837	100k 1% 0,1W
3712	482211710837	100k 1% 0,1W
3713	482205120121	120R 5% 0,1W
3714	482205120121	120R 5% 0,1W
3715	482205110102	1k 2% 0,25W
3716	482205110102	1k 2% 0,25W
3717	482205120392	3k9 5% 0,1W
3718	482205120392	3k9 5% 0,1W
3719	482205120822	8k2 5% 0,1W
3720	482205120822	8k2 5% 0,1W
3721	482205120562	5k6 5% 0,1W
3722	482205120562	5k6 5% 0,1W
3723	482211711383	12k 1% 0,1W
3724	482211711383	12k 1% 0,1W
3727	482205120562	5k6 5% 0,1W
3728	482205120562	5k6 5% 0,1W
3729	482205120332	3k3 5% 0,1W
3730	482205120332	3k3 5% 0,1W
3731	482205120822	8k2 5% 0,1W
3732	482205120822	8k2 5% 0,1W
3733	482205120562	5k6 5% 0,1W
3734	482205120562	5k6 5% 0,1W
3735	482211683933	15k 1% 0,1W
3736	482211683933	15k 1% 0,1W
3737	482205120332	3k3 5% 0,1W
3738	482205120332	3k3 5% 0,1W
3739	482205120472	4k7 5% 0,1W
3740	482211710834	47k 1% 0,1W
3741	482211711454	820R 1% 0,1W
3742	482211711454	820R 1% 0,1W
3743	482205110102	1k 2% 0,25W
3744	482205110102	1k 2% 0,25W

RESISTORS

3745	482205120392	3k9 5% 0,1W
3746	482205120392	3k9 5% 0,1W
3748	482211711449	2k2 1% 0,1W
3749	482211710834	47k 1% 0,1W
3751	482211710833	10k 1% 0,1W
3752	482211710837	100k 1% 0,1W
3753	482211710837	100k 1% 0,1W
3754	482205120333	33k 5% 0,1W
3756	482211713579	220k 1% 0,1W
3757	482211713579	220k 1% 0,1W
3758	482211710833	10k 1% 0,1W
3759	482211710833	10k 1% 0,1W
3760	482205120121	120R 5% 0,1W
3761	482205021003	10k 1% 0,6W
3762	482211711454	820R 1% 0,1W
3763	482205120154	150k 5% 0,1W
3764	482211683872	220R 5% 0,5W
3765	482205120393	39k 5% 0,1W
3766	482205120475	4M7 5% 0,1W
3767	482205120475	4M7 5% 0,1W
3768	482211710833	10k 1% 0,1W
3769	482211683933	15k 1% 0,1W
3770	482211711139	1k5 1% 0,1W
3771	482205120122	1k2 5% 0,1W
3772	482211711507	6k8 1% 0,1W
3773	482210012227	4k7 30% 0,1W
3774	482211711383	12k 1% 0,1W
3775	482205120478	4R7 5% 0,1W
3776	482211711507	6k8 1% 0,1W
3777	482211710353	150R 1% 0,1W
3778	482205210688 ⚠	6R8 5% 0,33W
3779	482205120334	330k 5% 0,1W
3780	482205120105	1M 5% 0,1W
3781	482205120475	4M7 5% 0,1W
3782	482211683933	15k 1% 0,1W
3783	482205120472	4k7 5% 0,1W
3784	482205120472	4k7 5% 0,1W
3785	532210011539	100k 30% 0,1W
3786	482205120223	22k 5% 0,1W
3787	482205120105	1M 5% 0,1W
3788	482205120105	1M 5% 0,1W
3789	482211710834	47k 1% 0,1W
4601	482205120008	0R Jumper 0805
4602	482205120008	0R Jumper 0805
4603	482205120008	0R Jumper 0805
4604	482205120008	0R Jumper 0805
4605	482205120008	0R Jumper 0805
4606	482205120008	0R Jumper 0805
4607	482205120008	0R Jumper 0805
4608	482205120008	0R Jumper 0805
4610	482205120008	0R Jumper 0805
4696	482205120008	0R Jumper 0805
4697	482205120008	0R Jumper 0805
4701	482205120008	0R Jumper 0805
4702	482205120008	0R Jumper 0805
4703	482205120008	0R Jumper 0805
4704	482205120008	0R Jumper 0805
4705	482205120008	0R Jumper 0805
4706	482205120008	0R Jumper 0805
4707	482205120008	0R Jumper 0805
4708	482205120008	0R Jumper 0805
4709	482205120008	0R Jumper 0805
4710	482205120008	0R Jumper 0805
4711	482205120008	0R Jumper 0805
4712	482205120008	0R Jumper 0805
4713	482205120008	0R Jumper 0805
4714	482205120008	0R Jumper 0805
4715	482205120008	0R Jumper 0805
4716	482205120008	0R Jumper 0805
4717	482205120008	0R Jumper 0805
4718	482205120008	0R Jumper 0805
4719	482205120008	0R Jumper 0805
4720	482205120008	0R Jumper 0805
4721	482205120008	0R Jumper 0805
4722	482205120008	0R Jumper 0805
4723	482205120008	0R Jumper 0805
4724	482205120008	0R Jumper 0805
4725	482205120008	0R Jumper 0805
4726	482205120008	0R Jumper 0805
4727	482205120008	0R Jumper 0805
4728	482205120008	0R Jumper 0805
4729	482205120008	0R Jumper 0805
4730	482205120008	0R Jumper 0805
4731	482205120008	0R Jumper 0805
4732	482205120008	0R Jumper 0805
4733	482205120008	0R Jumper 0805
4734	482205120008	0R Jumper 0805
4735	482205120008	0R Jumper 0805
4736	482205120008	0R Jumper 0805
4737	482205120008	0R Jumper 0805
4738	482205120008	0R Jumper 0805
4739	482205120008	0R Jumper 0805
4740	482205120008	0R Jumper 0805
4741	482205120008	0R Jumper 0805
4742	482205120008	0R Jumper 0805
4743	482205120008	0R Jumper 0805
4783	482205120008	0R Jumper 0805
4786	482205120008	0R Jumper 0805
4787	482205120008	0R Jumper 0805
4788	482205120008	0R Jumper 0805

COILS & FILTERS

5631	482215711865	Filter MPX 20kHz
5632	482215711865	Filter MPX 20kHz

5701	482215711477	Coil 2,2µH 5%
5702	482215711477	Coil 2,2µH 5%
5703	482215620946	Osc. Coil 100kHz

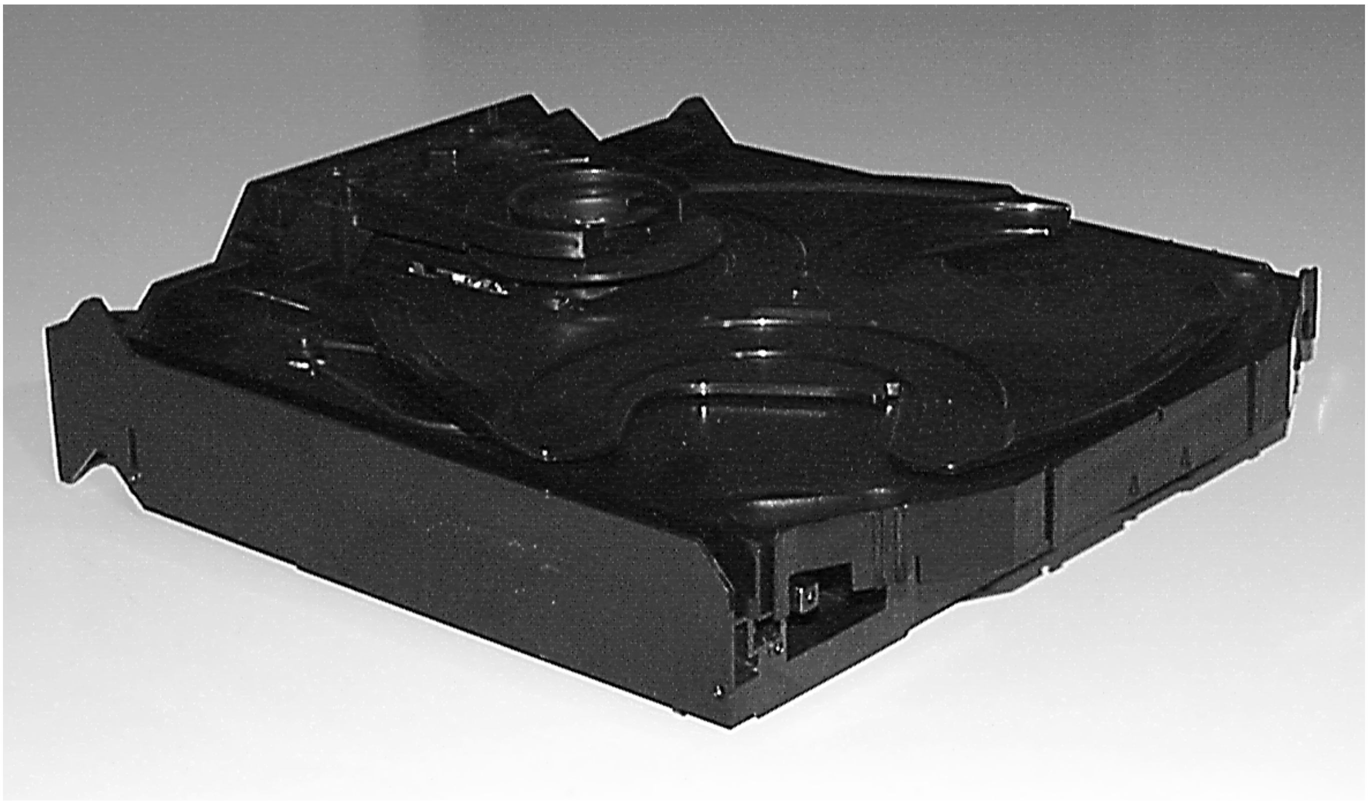
DIODES

6611	482213031878	1N4003G
6612	482213031878	1N4003G
6613	482213032245	BYV10-40
6614	482213030621	1N4148
6770	482213030621	1N4148
6771	482213030621	1N4148
6772	482213030621	1N4148
6773	482213030621	1N4148
6774	482213030621	1N4148
6775	482213030621	1N4148
6776	482213030621	1N4148
6777	482213034382	BZX79-C8V2
6778	482213030621	1N4148
6782	482213030621	1N4148
6785	482213030621	1N4148
6786	482213030621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7610	532220911306	HEF4094BT
7612	532213060845	BC807-25
7613	532213060845	BC807-25
7614	532213060845	BC807-25
7616	482213060373	BC857B
7618	482213060511	BC847B
7619	482213060511	BC847B
7620	482213060511	BC847B
7622	482213060511	BC847B
7623	482213060511	BC847B
7624	482213060511	BC847B
7630	482220917322	CXA1551M
7631	482213060511	BC847B
7632	482213060511	BC847B
7633	482213060511	BC847B
7634	482213060511	BC847B
7635	482213060511	BC847B
7636	482213060511	BC847B
7637	482213060511	BC847B
7638	482213060511	BC847B
7640	482220983357	NJM4560M
7710	482220932919	HEF4952BT
7720	932214000668	AN7323S
7730	482220932919	HEF4952BT
7740	482220932919	HEF4952BT
7780	482213060511	BC847B
7781	482213042804	BC817-25
7782	482213044568	BC557B
7783	482213060511	BC847B
7784	482213060373	BC857B
7785	482213063494	J111
7786	482213063494	J111
7787	482213060511	BC847B
7788	482213060511	BC847B
7789	482213060511	BC847B
7790	482213060511	BC847B
7791	482213060511	BC847B
7792	482213060511	BC847B

Note : Only the parts mentioned in this list are normal service spare parts.



3CDC-LC-MB-DA11 Module

(3 Disc Carousel Changer)

Layout stage .2

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WARNING

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE

- ***SWITCH OFF POWER SUPPLY***
- ***ESD PROTECTION***

ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CD mechanism:

1. Disconnect CD drive flexfoil from old CD drive
2. Connect paperclip to CD drive flexfoil to short-circuit flexfoil (fig.1)
3. Remove old CD drive
4. Remove short-circuit from flexfoil of CD drive
5. Connect flexfoil to new CD drive
6. Position new CD drive in its studs
7. Remove short-circuit from Laserunit

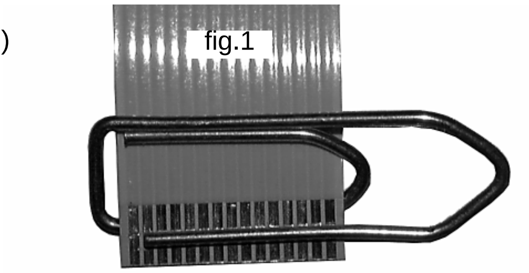
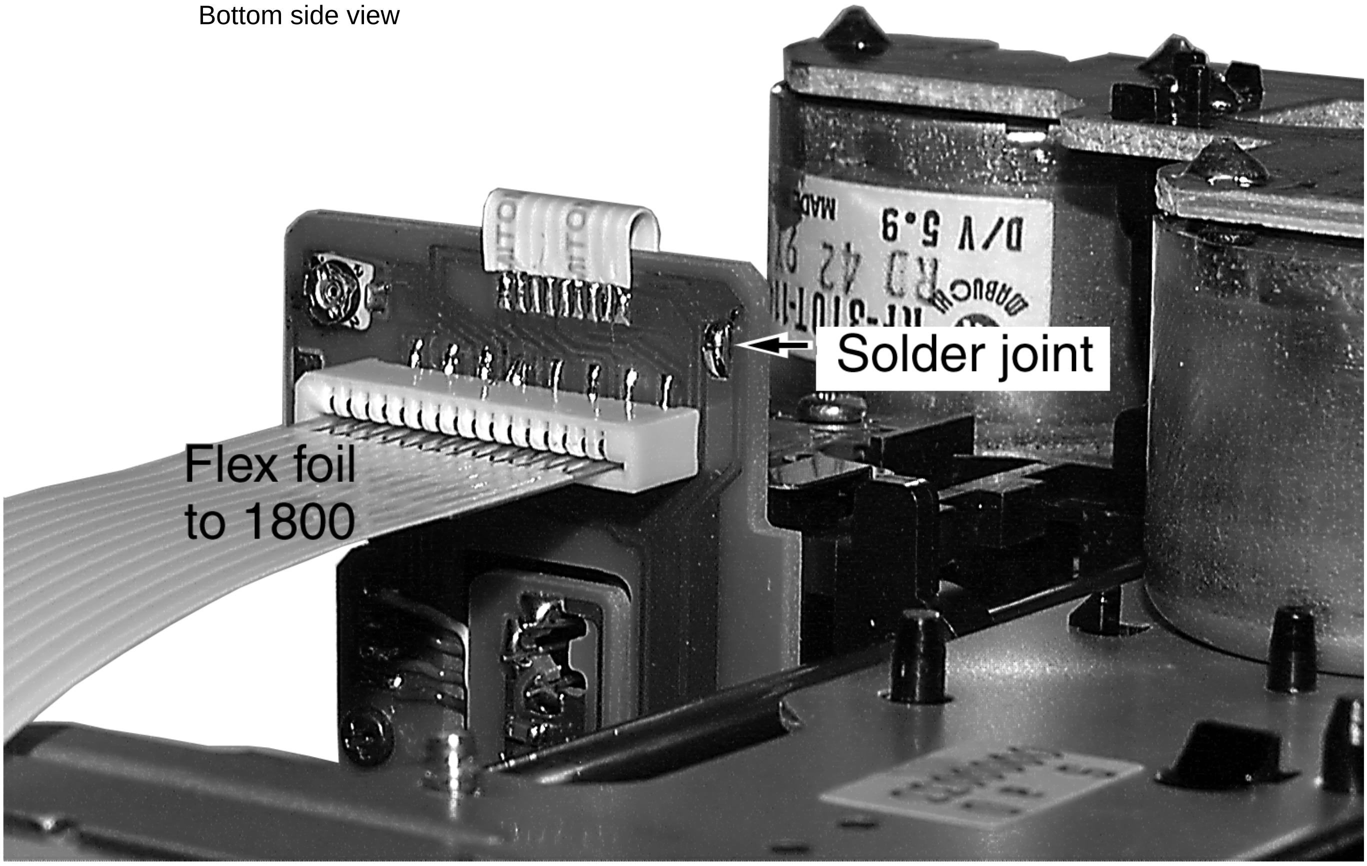


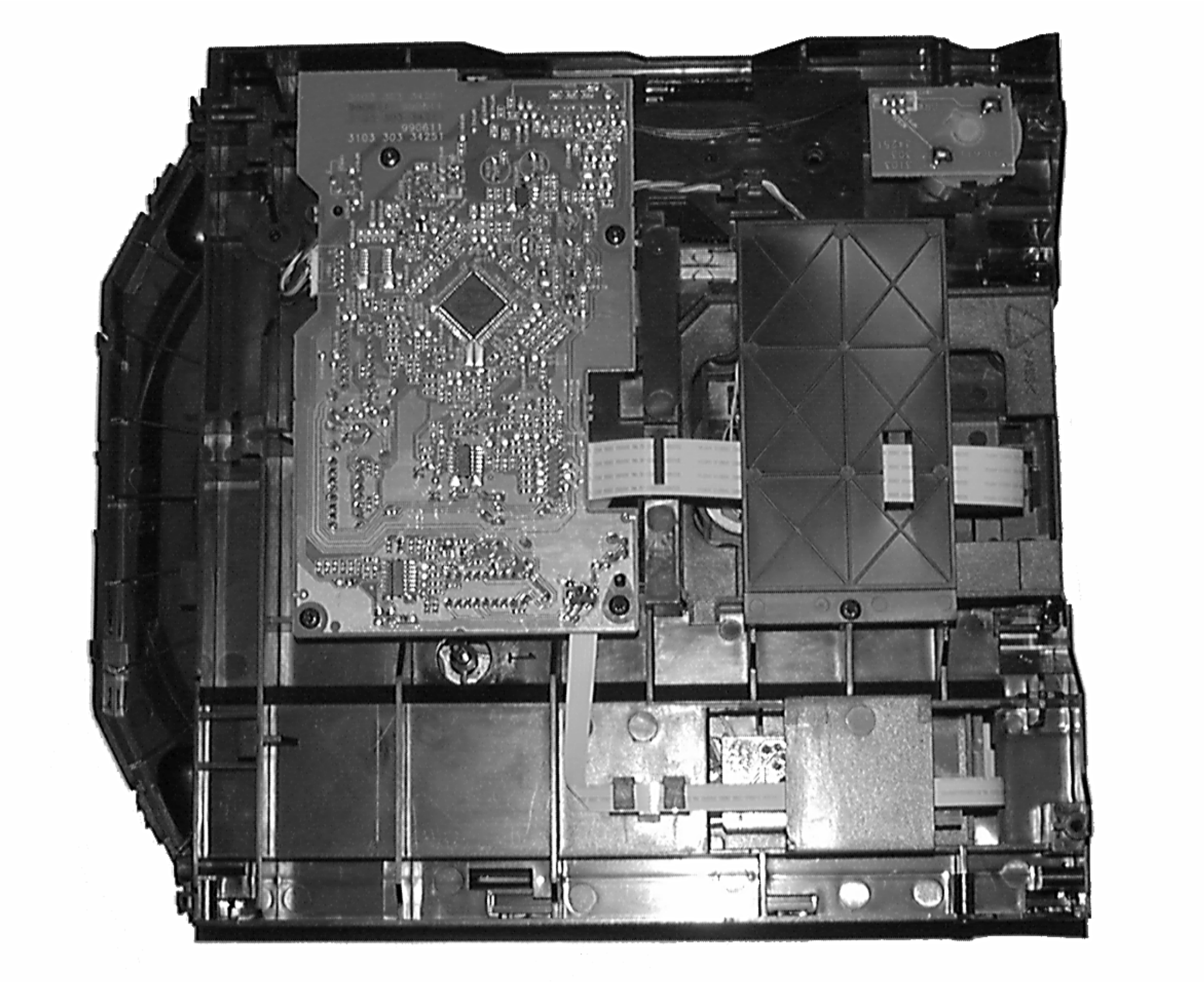
fig.1

Attention: The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laserdiode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connection the drive to the set.

CD Drive
Bottom side view

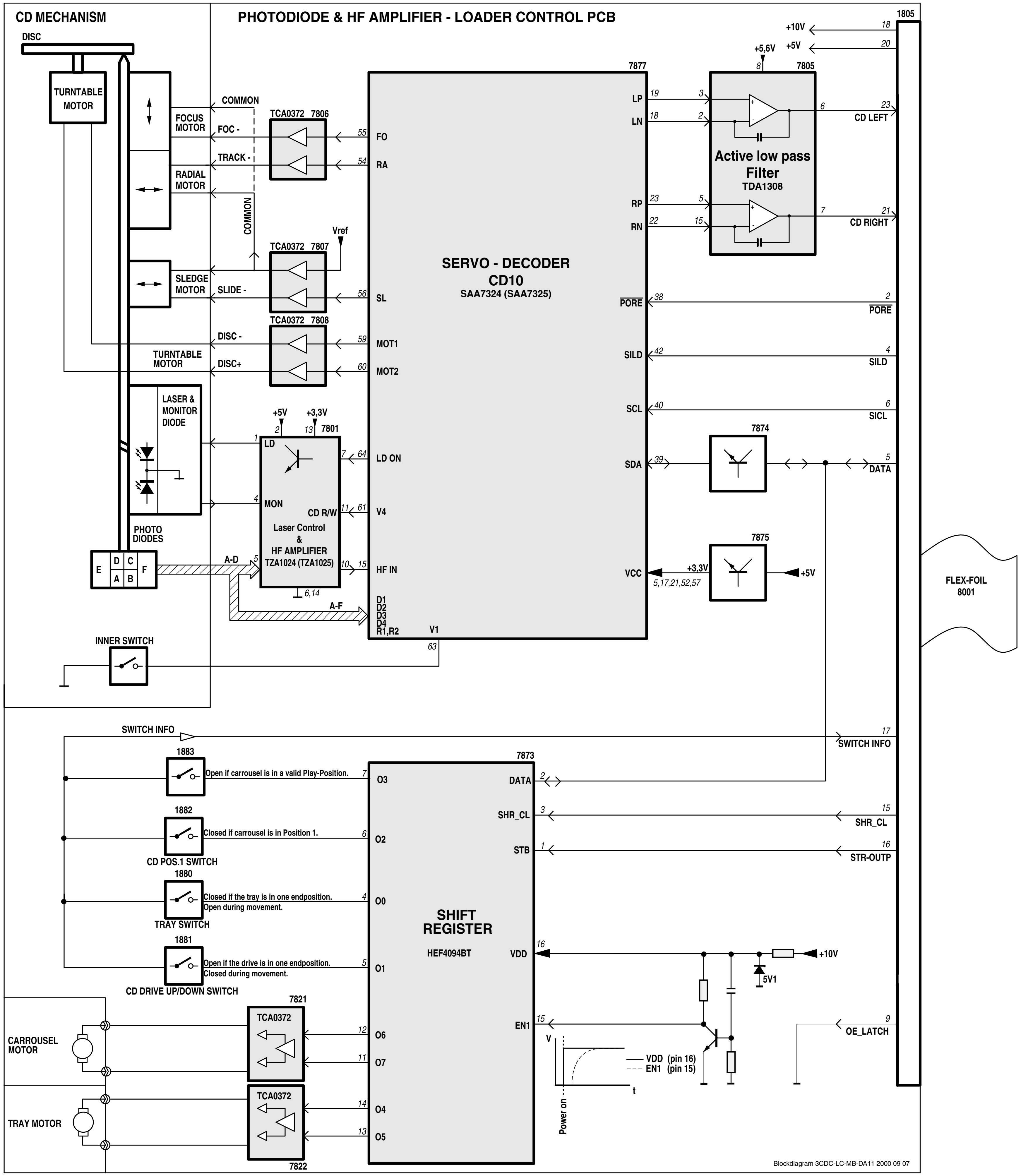


Service Position

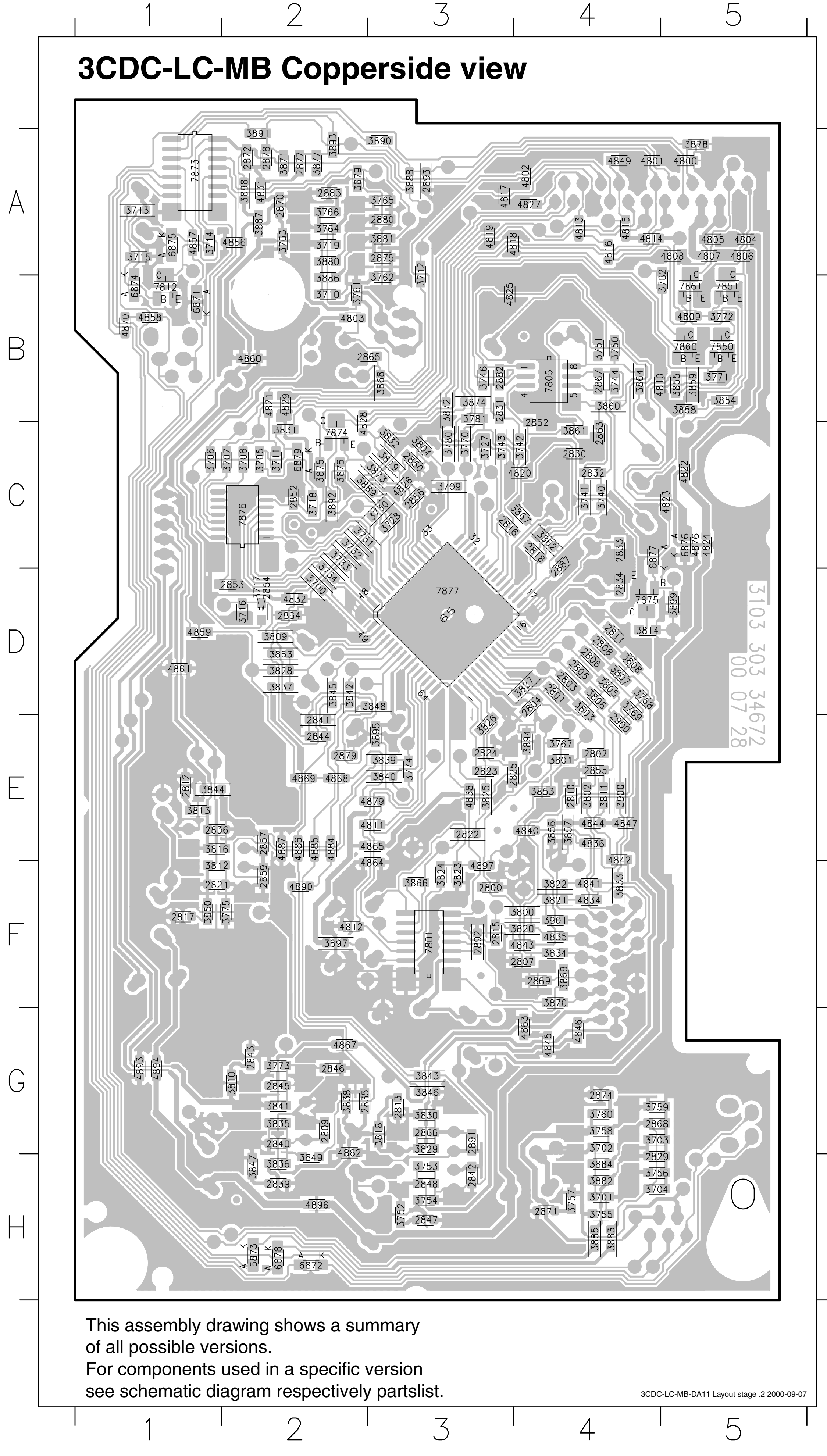


Technical Remarks

Blockdiagram


CD MECHANISM
DISC
TURNTABLE MOTOR
FOCUS MOTOR
RADIAL MOTOR
SLEDGE MOTOR
TURNTABLE MOTOR
LASER & MONITOR DIODE
PHOTO DIODES
E D C A B F
INNER SWITCH
PHOTODIODE & HF AMPLIFIER - LOADER CONTROL PCB
COMMON
FOC -
TRACK -
SLIDE -
DISC -
DISC+
TCA0372 7806
TCA0372 7807
TCA0372 7808
Vref
+5V
+3,3V
7801
LD
MON
CD R/W
Laser Control & HF AMPLIFIER TZA1024 (TZA1025)
A-D
A-F
6,14
7877
SERVO - DECODER CD10 SAA7324 (SAA7325)
FO
RA
SL
MOT1
MOT2
LD ON
V4
HF IN
D1 D2 D3 D4 R1,R2
V1
63
LP
LN
RP
RN
PORE
SILD
SCL
SDA
VCC
5,17,21,52,57
+5,6V
7805
Active low pass Filter TDA1308
7874
7875
+3,3V
+5V
1805
+10V
+5V
CD LEFT
CD RIGHT
PORE
SILD
SICL
DATA
FLEX-FOIL 8001
SWITCH INFO
1883
Open if carrousel is in a valid Play-Position.
1882
Closed if carrousel is in Position 1.
CD POS.1 SWITCH
1880
Closed if the tray is in one endposition. Open during movement.
TRAY SWITCH
1881
Open if the drive is in one endposition. Closed during movement.
CD DRIVE UP/DOWN SWITCH
7873
SHIFT REGISTER HEF4094BT
O3
O2
O0
O1
O6
O7
O4
O5
DATA
SHR_CL
STB
VDD
EN1
SHR_CL
STR-OUTP
OE_LATCH
+10V
5V1
V
t
Power on
VDD (pin 16)
EN1 (pin 15)
7821
TCA0372
7822
TCA0372
CARROUSEL MOTOR
TRAY MOTOR
Blockdiagram 3CDC-LC-MB-DA11 2000 09 07

3CDC-LC-MB Copperside view



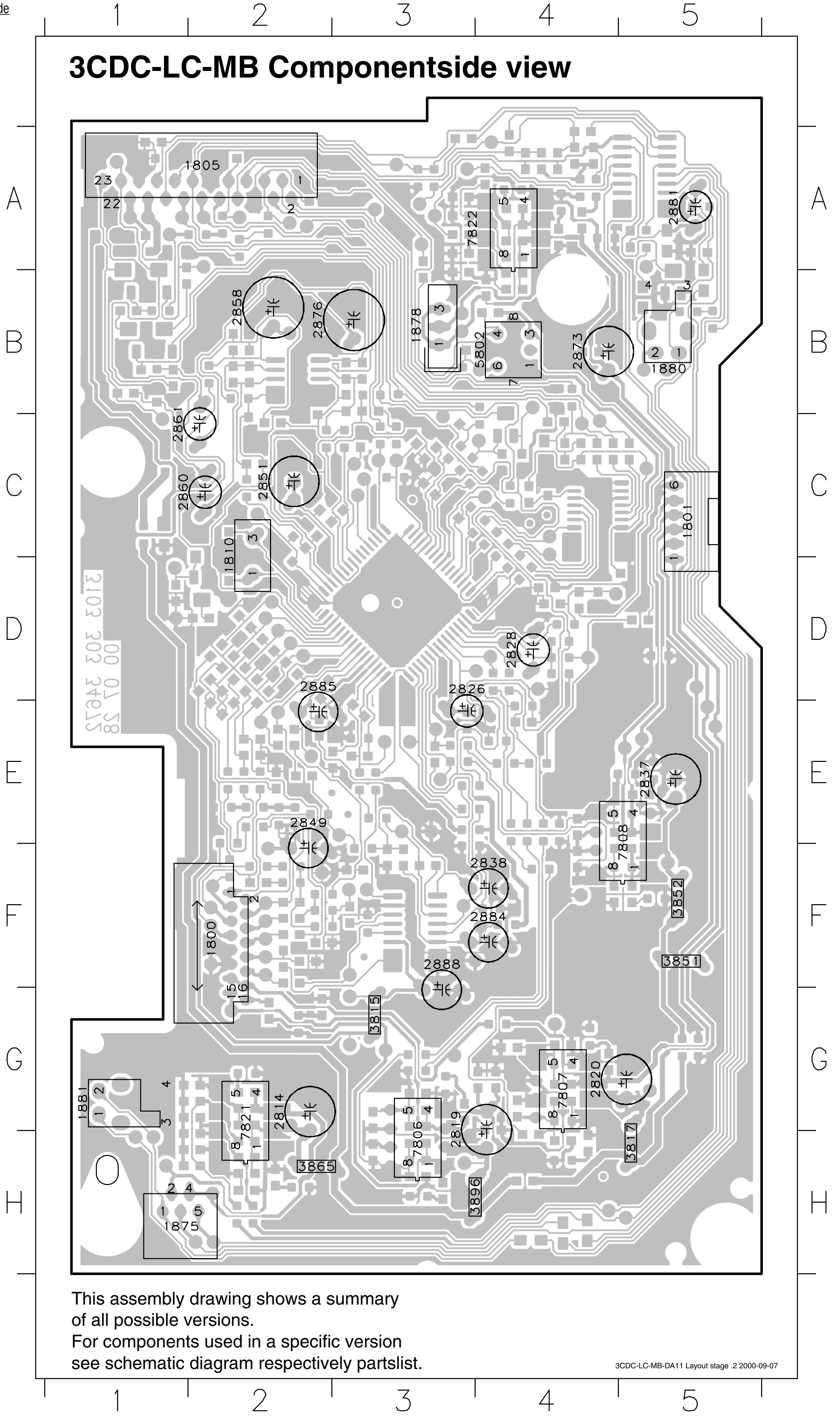
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LC-MB-DA11 Layout stage .2 2000-09-07

Mapping

Copperside								Componentside	
2800	F3	3746	B3	3880	A2	7860	B5	1800	F2
2801	D4	3750	B4	3881	A3	7861	B5	1801	C5
2802	E4	3751	B4	3882	H4	7873	A1	1805	A2
2803	D4	3752	H3	3883	H4	7874	C2	1810	C2
2804	D4	3753	H3	3884	H4	7875	D4	1875	H1
2805	D4	3754	H3	3885	H4	7876	C2	1878	B3
2806	D4	3755	H4	3886	B2	7877	D3	1880	B5
2807	F4	3756	H4	3887	A2			1881	G1
2808	D4	3757	H4	3888	A3			2814	G2
2809	G2	3758	G4	3889	C2			2819	G3
2810	E4	3759	G4	3890	A3			2820	G4
2811	D4	3760	G4	3891	A2			2826	D3
2812	E1	3761	B2	3892	C2			2828	D4
2813	G3	3762	B3	3893	A2			2837	E5
2815	F3	3763	A2	3894	E4			2838	F4
2816	C3	3764	A2	3895	E3			2849	E2
2817	F1	3765	A3	3897	F2			2851	C2
2818	C4	3766	A2	3898	A2			2858	B2
2821	F1	3767	E4	3899	D5			2860	C1
2822	E3	3768	D4	3900	E4			2861	C1
2823	E3	3769	D4	3901	F4			2873	B4
2824	E3	3770	C3	4800	A5			2876	B2
2825	E3	3771	B5	4801	A4			2881	A5
2829	H4	3772	B5	4802	A4			2884	F4
2830	C4	3773	G2	4803	B2			2885	D2
2831	B3	3774	E3	4804	A5			2888	F3
2832	C4	3775	F2	4805	A5			3815	G3
2833	C4	3780	C3	4806	A5			3817	H5
2834	D4	3781	B3	4807	A5			3851	F5
2835	G2	3782	B5	4808	A5			3852	F5
2836	E1	3800	F4	4809	B5			3865	H2
2839	H2	3801	E4	4810	B4			3896	H3
2840	G2	3802	E4	4811	E3			5802	B4
2841	E2	3803	D4	4812	F2			7806	H3
2842	H3	3804	C3	4813	A4			7807	G4
2843	G2	3805	D4	4814	A4			7808	E5
2844	E2	3806	D4	4815	A4			7821	G2
2845	G2	3807	D4	4816	A4			7822	A3
2846	G2	3808	D4	4817	A3				
2847	H3	3809	D2	4818	A3				
2848	H3	3810	G2	4819	A3				
2850	C3	3811	E4	4820	C4				
2852	C2	3812	F1	4821	B2				
2853	D2	3813	E1	4822	C5				
2854	D2	3814	D4	4823	C5				
2855	E4	3816	E1	4824	C5				
2856	C3	3818	G3	4825	B3				
2857	E2	3819	C3	4826	C3				
2859	F2	3820	F4	4827	A4				
2862	C4	3821	F4	4828	C2				
2863	C4	3822	F4	4829	B2				
2864	D2	3823	F3	4831	A2				
2865	B3	3824	F3	4832	D2				
2866	G3	3825	E3	4834	F4				
2867	B4	3826	E3	4835	F4				
2868	G4	3827	D4	4836	E4				
2869	F4	3828	D2	4838	E3				
2870	A2	3829	G3	4840	E4				
2871	H4	3830	G3	4841	F4				
2872	A2	3831	C2	4842	E4				
2874	G4	3832	C3	4843	F4				
2875	A3	3833	F4	4844	E4				
2877	A2	3834	F4	4845	G4				
2878	A2	3835	G2	4846	G4				
2879	E2	3836	H2	4847	E4				
2880	A3	3837	D2	4849	A4				
2882	B3	3838	G2	4856	A2				
2883	A2	3839	E3	4857	A1				
2887	C4	3840	E3	4858	B1				
2891	G3	3841	G2	4859	D1				
2892	F3	3842	D2	4860	B2				
2893	A3	3843	G3	4861	D1				
2900	E4	3844	E1	4862	G2				
3700	D2	3845	D2	4863	G4				
3701	H4	3846	G3	4864	F3				
3702	G4	3847	H2	4865	E3				
3703	G4	3848	D3	4867	G2				
3704	H4	3849	H2	4868	E2				
3705	C2	3850	F1	4869	E2				
3706	C1	3853	E4	4870	B1				
3707	C2	3854	B5	4876	C5				
3708	C2	3855	B5	4879	E3				
3709	C3	3856	E4	4884	E2				
3710	B2	3857	E4	4885	E2				
3711	C2	3858	B5	4886	E2				
3712	A3	3859	B5	4887	E2				
3713	A1	3860	B4	4890	F2				
3714	A1	3861	C4	4893	G1				
3715	A1	3862	C4	4894	G1				
3716	D2	3863	D2	4896	H2				
3717	D2	3864	B4	4897	F3				
3718	C2	3866	F3	6871	B1				
3719	A2	3867	C4	6872	H2				
3727	C3	3868	B3	6873	H2				
3728	C3	3869	F4	6874	B1				
3730	C3	3870	F4	6875	A1				
3731	C2	3871	A2	6876	C5				
3732	C2	3872	B3	6877	C4				
3733	C2	3873	C3	6878	H2				
3734	D2	3874	B3	6879	C2				
3740	C4	3875	C2	7801	F3				
3741	C4	3876	C2	7805	B4				
3742	C4	3877	A2	7812	B1				
3743	C3	3878	A5	7850	B5				
3744	B4	3879	A2	7851	B5				

3CDC-LC-MB Componentside view



This assembly drawing shows a summary
of all possible versions.
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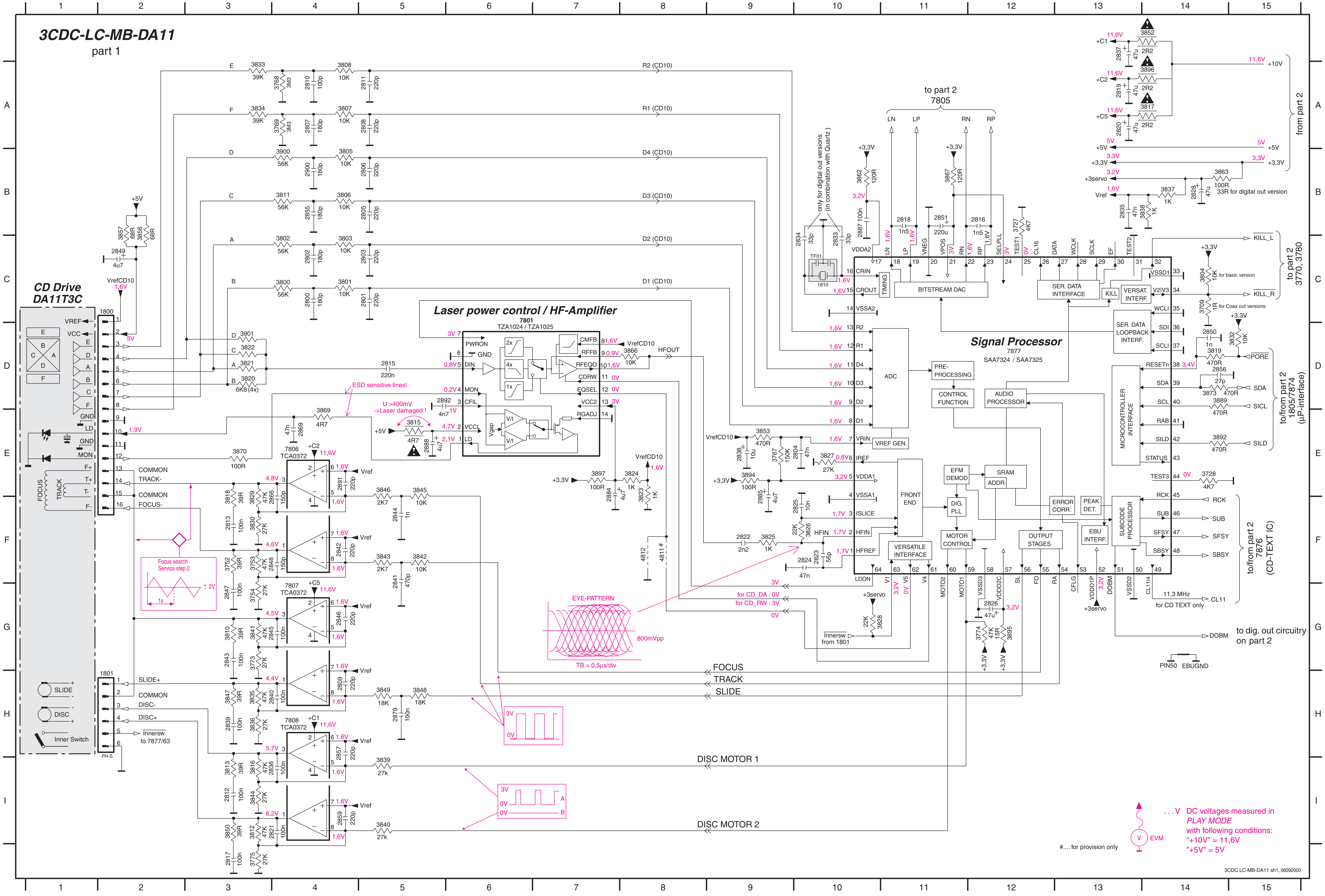
see schematic diagram respectively partslist.

3CDC-LC-MB-DA11 Layout stage .2 2000-09-07

1800	D1
1801	G1
1810	C10
2800	C4
2801	C5
2802	C4
2803	C5
2804	E10
2805	B5
2806	B5
2807	A4
2808	A5
2809	H4
2810	A4
2811	A5
2812	I3
2813	F3
2815	D5
2816	B12
2817	I3
2818	B11
2819	A13
2820	A13
2821	I4
2822	F9
2823	F10
2824	F10
2825	F10
2826	G12
2828	B14
2833	C10
2834	C10
2835	B13
2836	I4
2837	A13
2838	E8
2839	H3
2840	H4
2841	G5
2842	F4
2843	G3
2844	F5
2845	G4
2846	G4
2847	G3
2848	F4
2849	C2
2850	D14
2851	B11
2855	B4
2856	D14
2857	H4
2859	I4
2866	F4
2869	E4
2879	H5
2884	E7
2885	F9
2887	B10
2888	E5
2891	E4
2892	D5
2900	B4
3709	C14
3727	B12
3728	E14
3752	F3
3753	F3
3754	G3
3767	E9
3768	A4
3769	A4
3773	G3
3774	G12
3775	I3
3800	C4
3801	C4
3802	C4
3803	C4
3804	C14
3805	B4
3806	B4
3807	A4
3808	A4
3810	G3
3811	B4
3812	I3
3813	I3
3815	E5
3816	I3
3817	A14
3818	F3
3819	D14
3820	D3
3821	D3
3822	D3
3823	E8
3824	E8
3825	F10
3826	F9
3827	E10
3828	G10
3829	F3
3830	F3
3832	D15
3833	A3
3834	A3
3835	H3
3836	H3
3837	B14
3838	B14
3839	I5
3840	I5
3841	G3
3842	F5
3843	F5
3844	I3
3845	E5
3846	E5
3847	H3
3848	H5
3849	H5
3850	I3
3852	A14
3853	E9
3856	C2
3857	C2
3862	B10
3863	B14
3866	D8
3867	B11
3869	E4
3870	E3
3873	D14
3889	D14
3892	E14
3894	E9
3895	G12
3896	A14
3897	E7
3900	B3
3901	D3
4811	F8
4812	F8
7801	E7
7806	E4
7807	G4
7808	H4
7877	D12

3CDC-LC-MB-DA11

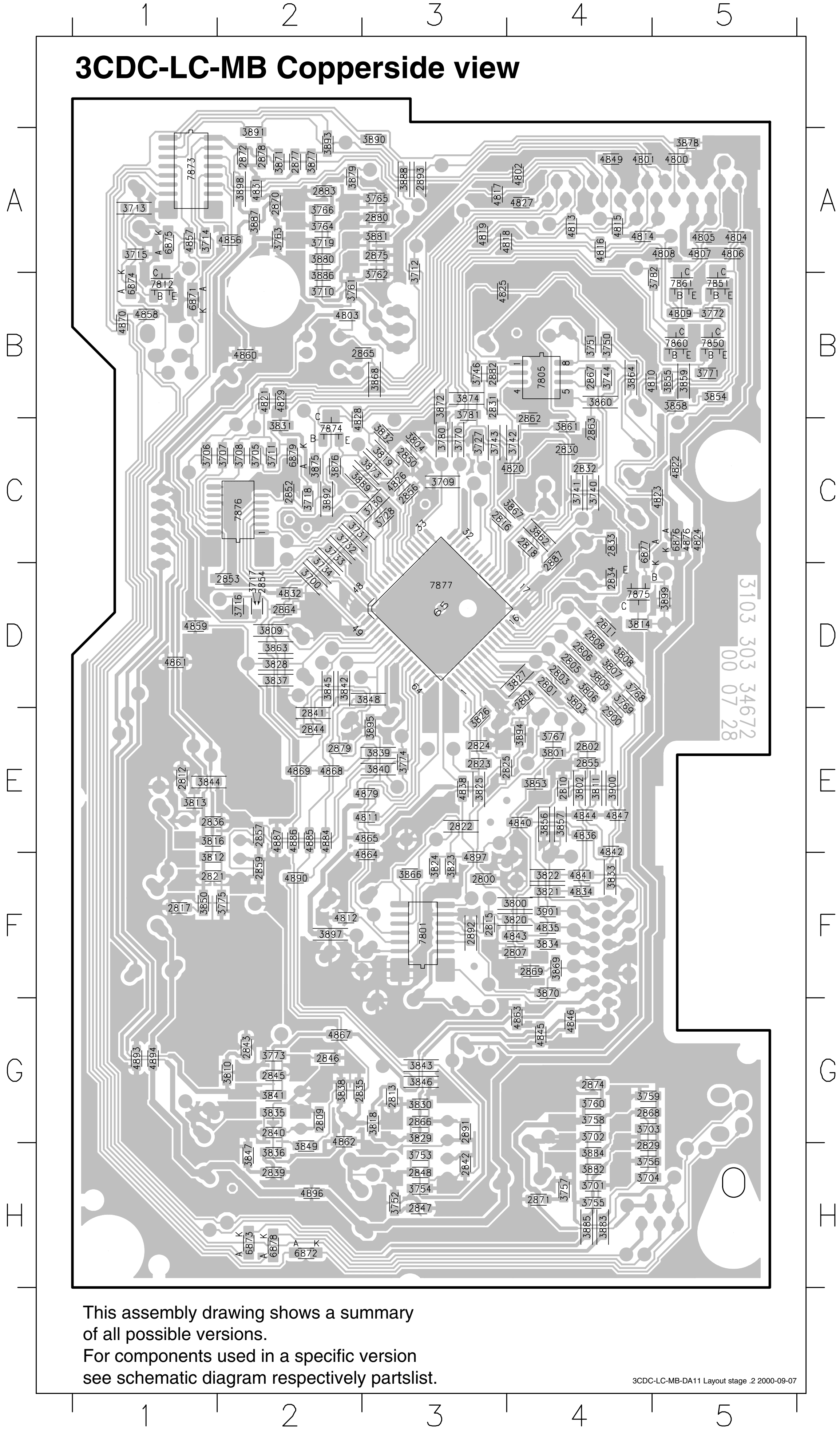
part 1



CD Drive
DA11T3C
1800
VREF
VCC
GND
LD
MON
FOCUS
TRACK
1801
SLIDE
DISC
Inner Switch
PH-S
COMMON
TRACK-
FOCUS-
SLIDE+
DISC-
DISC+
Innersw
to 7877/63
Laser power control / HF-Amplifier
7801
TZA1024 / TZA1025
PWRON
DIN
MON
CFIL
VCCL
LD
CMFB
RFFB
RFEQO
CDRW
EQSEL
VCC2
RGADJ
Vgap
V/I
HFOUT
VrefCD10
ESD sensitive lines!
U >400mV
->Laser damaged !
7806
TCA0372
7807
TCA0372
7808
TCA0372
Vref
Focus search
Service step 2
1s
± 2V
EYE-PATTERN
800mVpp
TB = 0,5µs/div
for CD_DA : 0V
for CD_RW : 3V
FOCUS
TRACK
SLIDE
DISC MOTOR 1
DISC MOTOR 2
R2 (CD10)
R1 (CD10)
D4 (CD10)
D3 (CD10)
D2 (CD10)
D1 (CD10)
only for digital out versions
(in combination with Quartz)
TF01
1810
to part 2
7805
LN
LP
RN
RP
Signal Processor
7877
SAA7324 / SAA7325
CRIN
CROUT
TIMING
BITSTREAM DAC
SER. DATA INTERFACE
KILL
VERSAT. INTERF.
SER. DATA LOOPBACK INTERF.
MICROCONTROLLER INTERFACE
ADC
PRE-PROCESSING
CONTROL FUNCTION
AUDIO PROCESSOR
VREF GEN.
FRONT END
EFM DEMOD
SRAM
ADDR
DIG. PLL
MOTOR CONTROL
VERSATILE INTERFACE
ERROR CORR.
PEAK DET.
EBU INTERF.
OUTPUT STAGES
SUBCODE PROCESSOR
Innersw
from 1801
+10V
from part 2
KILL_L
KILL_R
to part 2
3770, 3780
for basic version
for Coax out versions
PORE
SDA
SICL
SILD
to/from part 2
1805/7874
(µP-interface)
RCK
SUB
SFSY
SBSY
to/from part 2
7876
(CD-TEXT IC)
11,3 MHz
CL11
for CD TEXT only
DOBM
to dig. out circuitry
on part 2
33R for digital out version
PIN50
EBUGND
#.... for provision only
EVM
. . . V DC voltages measured in
PLAY MODE
with following conditions:
"+10V" = 11,6V
"+5V" = 5V

3CDC LC-MB-DA11 sh1, 06092000

3CDC-LC-MB Copperside view



This assembly drawing shows a summary
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3CDC-LC-MB-DA11 Layout stage .2 2000-09-07

Mapping

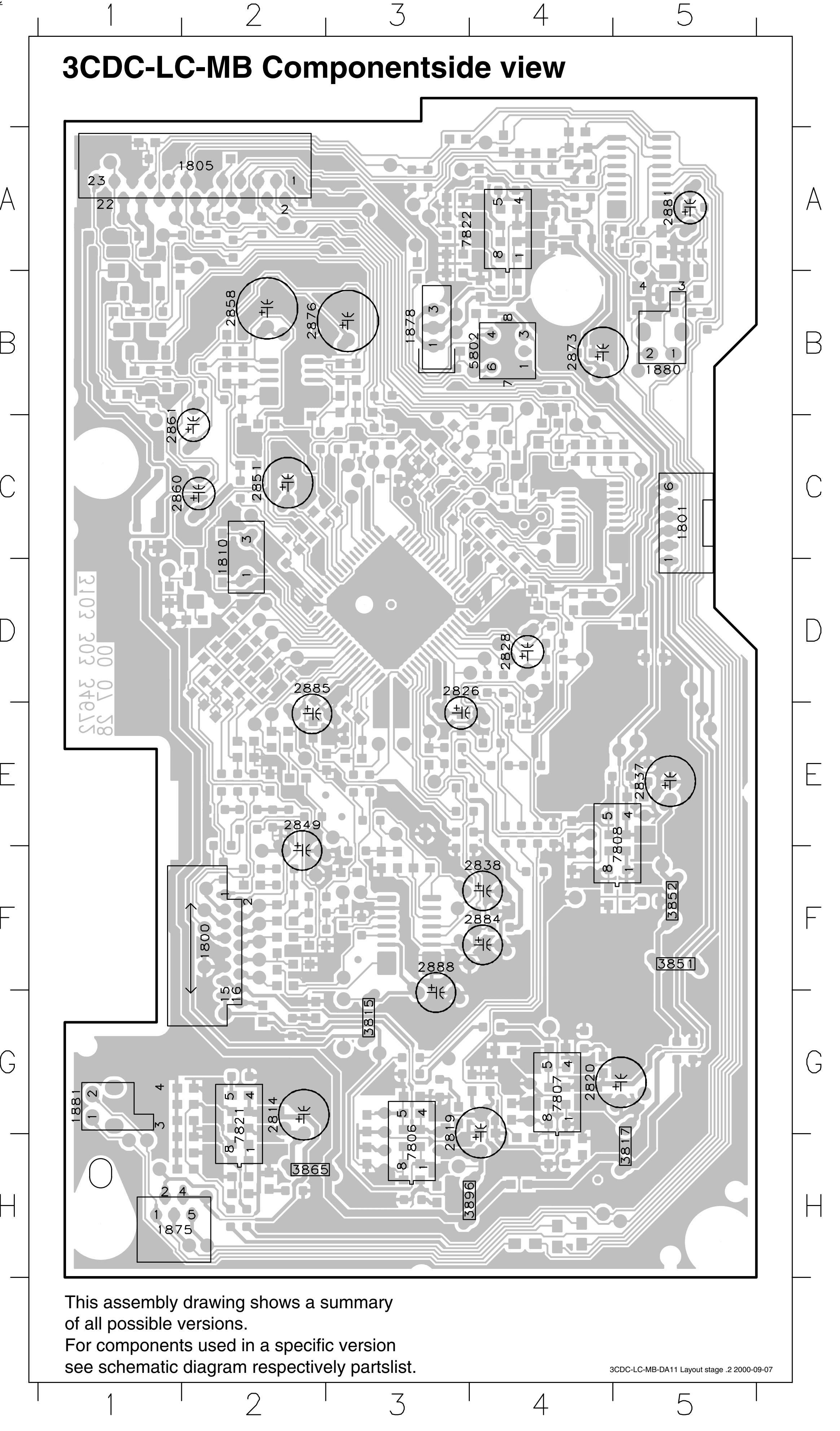
Copperside

2800	F3
2801	D4
2802	E4
2803	D4
2804	D4
2805	D4
2806	D4
2807	F4
2808	D4
2809	G2
2810	E4
2811	D4
2812	E1
2813	G3
2815	F3
2816	C3
2817	F1
2818	C4
2821	F1
2822	E3
2823	E3
2824	E3
2825	E3
2829	H4
2830	C4
2831	B3
2832	C4
2833	C4
2834	D4
2835	G2
2836	E1
2839	H2
2840	G2
2841	E2
2842	H3
2843	G2
2844	E2
2845	G2
2846	G2
2847	H3
2848	H3
2850	C3
2852	C2
2853	D2
2854	D2
2855	E4
2856	C3
2857	E2
2859	F2
2862	C4
2863	C4
2864	D2
2865	B3
2866	G3
2867	B4
2868	G4
2869	F4
2870	A2
2871	H4
2872	A2
2874	G4
2875	A3
2877	A2
2878	A2
2879	E2
2880	A3
2882	B3
2883	A2
2887	C4
2891	G3
2892	F3
2893	A3
2900	E4
3700	D2
3701	H4
3702	G4
3703	G4
3704	H4
3705	C2
3706	C1
3707	C2
3708	C2
3709	C3
3710	B2
3711	C2
3712	A3
3713	A1
3714	A1
3715	A1
3716	D2
3717	D2
3718	C2
3719	A2
3727	C3
3728	C3
3730	C3
3731	C2
3732	C2
3733	C2
3734	D2
3740	C4
3741	C4
3742	C4
3743	C3
3744	B4
3746	B3
3750	B4
3751	B4
3752	H3
3753	H3
3754	H3
3755	H4
3756	H4
3757	H4
3758	G4
3759	G4
3760	G4
3761	B2
3762	B3
3763	A2
3764	A2
3765	A3
3766	A2
3767	E4
3768	D4
3769	D4
3770	C3
3771	B5
3772	B5
3773	G2
3774	E3
3775	F2
3780	C3
3781	B3
3782	B5
3800	F4
3801	E4
3802	E4
3803	D4
3804	C3
3805	D4
3806	D4
3807	D4
3808	D4
3809	D2
3810	G2
3811	E4
3812	F1
3813	E1
3814	D4
3816	E1
3818	G3
3819	C3
3820	F4
3821	F4
3822	F4
3823	F3
3824	F3
3825	E3
3826	E3
3827	D4
3828	D2
3829	G3
3830	G3
3831	C2
3832	C3
3833	F4
3834	F4
3835	G2
3836	H2
3837	D2
3838	G2
3839	E3
3840	E3
3841	G2
3842	D2
3843	G3
3844	E1
3845	D2
3846	G3
3847	H2
3848	D3
3849	H2
3850	F1
3853	E4
3854	B5
3855	B5
3856	E4
3857	E4
3858	B5
3859	B5
3860	B4
3861	C4
3862	C4
3863	D2
3864	B4
3866	F3
3867	C4
3868	B3
3869	F4
3870	F4
3871	A2
3872	B3
3873	C3
3874	B3
3875	C2
3876	C2
3877	A2
3878	A5
3879	A2
3880	A2
3881	A3
3882	H4
3883	H4
3884	H4
3885	H4
3886	B2
3887	A2
3888	A3
3889	C2
3890	A3
3891	A2
3892	C2
3893	A2
3894	E4
3895	E3
3897	F2
3898	A2
3899	D5
3900	E4
3901	F4
4800	A5
4801	A4
4802	A4
4803	B2
4804	A5
4805	A5
4806	A5
4807	A5
4808	A5
4809	B5
4810	B4
4811	E3
4812	F2
4813	A4
4814	A4
4815	A4
4816	A4
4817	A3
4818	A3
4819	A3
4820	C4
4821	B2
4822	C5
4823	C5
4824	C5
4825	B3
4826	C3
4827	A4
4828	C2
4829	B2
4831	A2
4832	D2
4834	F4
4835	F4
4836	E4
4838	E3
4840	E4
4841	F4
4842	E4
4843	F4
4844	E4
4845	G4
4846	G4
4847	E4
4849	A4
4856	A2
4857	A1
4858	B1
4859	D1
4860	B2
4861	D1
4862	G2
4863	G4
4864	F3
4865	E3
4867	G2
4868	E2
4869	E2
4870	B1
4876	C5
4879	E3
4884	E2
4885	E2
4886	E2
4887	E2
4890	F2
4893	G1
4894	G1
4896	H2
4897	F3
6871	B1
6872	H2
6873	H2
6874	B1
6875	A1
6876	C5
6877	C4
6878	H2
6879	C2
7801	F3
7805	B4
7812	B1
7850	B5
7851	B5
7860	B5
7861	B5
7873	A1
7874	C2
7875	D4
7876	C2
7877	D3

Componentside

1800	F2
1801	C5
1805	A2
1810	C2
1875	H1
1878	B3
1880	B5
1881	G1
2814	G2
2819	G3
2820	G4
2826	D3
2828	D4
2837	E5
2838	F4
2849	E2
2851	C2
2858	B2
2860	C1
2861	C1
2873	B4
2876	B2
2881	A5
2884	F4
2885	D2
2888	F3
3815	G3
3817	H5
3851	F5
3852	F5
3865	H2
3896	H3
5802	B4
7806	H3
7807	G4
7808	E5
7821	G2
7822	A3

3CDC-LC-MB Componentside view



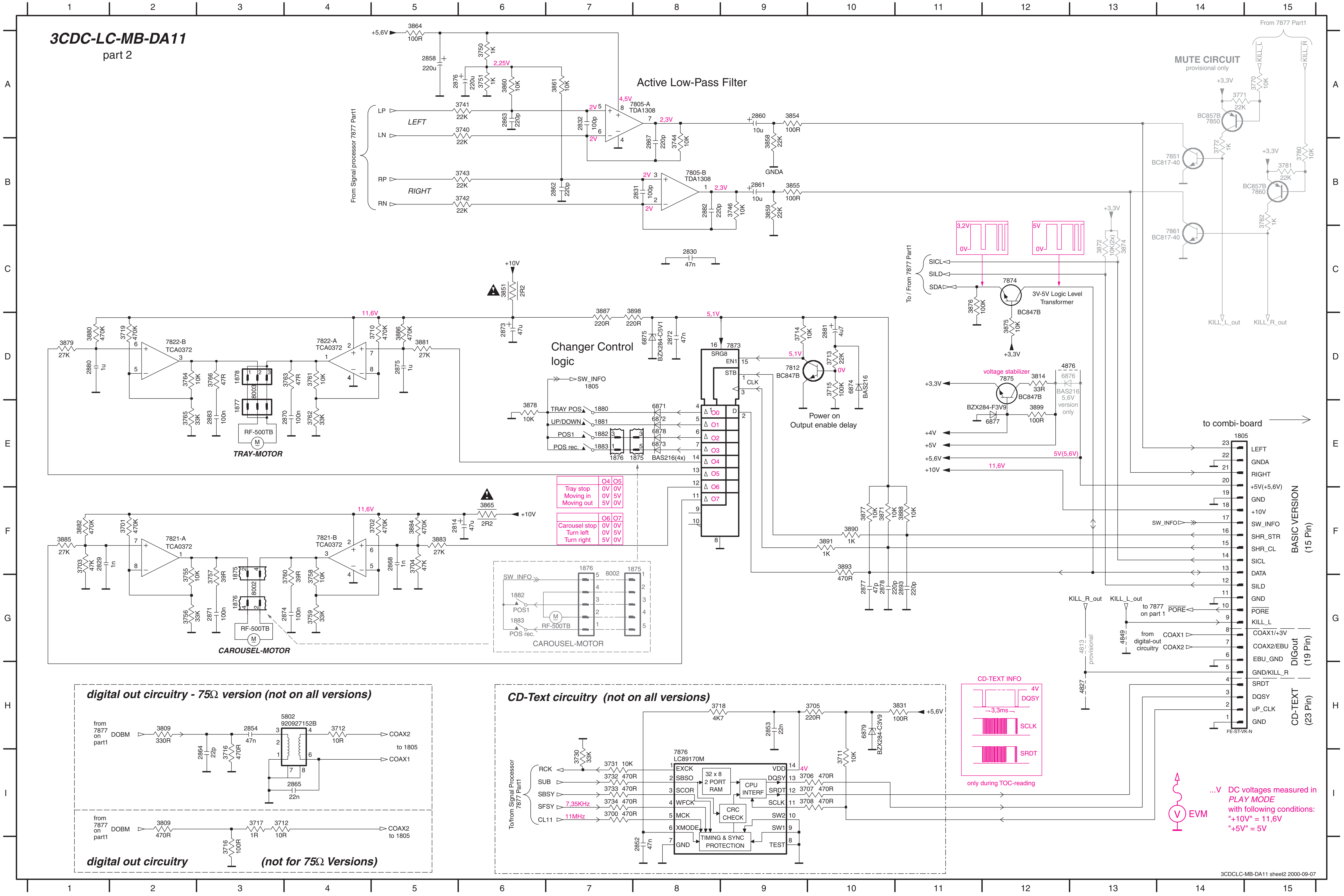
This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

3CDC-LC-MB-DA11 Layout stage .2 2000-09-07

1805	E14	1880	E7	2831	B8	2861	B9	2870	E4	2877	G10	3372	C13	3705	H10	3713	D10	3730	I7	3743	B6
1850	G3	1881	E7	2832	A7	2862	B7	2871	G3	2878	G10	3374	C13	3706	I10	3714	D9	3732	I7	3744	B8
1875	E8	1882	E7	2852	I8	2863	A6	2872	D8	2880	D1	3700	I7	3707	I10	3715	D10	3733	I7	3746	B9
1876	E7	1883	E7	2853	H9	2864	I3	2873	D6	2881	D10	3701	F2	3708	I10	3716	I3	3734	I7	3750	A6
1877	E3	2814	F6	2854	H3	2865	I4	2874	G4	2882	B8	3702	F5	3710	D5	3718	H8	3740	A6	3751	A6
1878	D3	2829	F2	2858	A5	2867	B8	2875	D5	2883	E3	3703	F1	3711	I10	3719	D2	3741	A6	3755	G2
1878	G3	2830	C8	2860	A9	2868	F5	2876	A6	2893	G11	3704	F5	3712	H4	3730	I7	3742	B6	3756	G2

3757	G3	3764	D2	3781	B15	3855	B9	3871	F10	3881	D5	3888	F11	4827	H13	6874	D10	7805-B	B8	7851	B14
3758	G4	3765	E2	3782	B15	3858	B9	3875	D12	3882	F1	3890	F10	4849	G13	6875	D8	7812	D9	7860	B15
3759	G4	3766	D3	3809	H2	3859	B9	3876	C11	3883	F5	3891	F10	4876	D12	6876	D12	7821-A	F2	7861	C14
3760	G4	3770	A15	3814	D12	3860	A6	3877	F10	3884	F5	3893	F10	5802	H4	6877	E12	7821-B	F4	7873	D9
3761	D4	3771	A14	3831	H11	3861	A7	3878	E6	3885	F1	3898	D7	6871	E8	6878	E8	7822-A	D4	7874	C12
3762	E4	3772	B14	3851	C6	3864	A5	3879	D1	3886	D5	3899	E12	6872	E8	6879	H10	7822-B	D2	7875	D12
3763	D4	3780	B15	3854	A9	3865	F6	3880	D1	3887	D7	4813	G13	6873	E8	7805-A	A7	7850	A14	7876	I8

3CDC-LC-MB-DA11
part 2


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
Active Low-Pass Filter
7805-A TDA1308
7805-B TDA1308
From Signal processor 7877 Part1
LP
LN
RP
RN
LEFT
RIGHT
+5,6V
2,25V
4,5V
2V
2,3V
GNDA
MUTE CIRCUIT
provisional only
From 7877 Part1
KILL_L
KILL_R
+3,3V
BC857B 7850
BC817-40 7851
BC857B 7860
BC817-40 7861
KILL_L_out
KILL_R_out
To / From 7877 Part1
SICL
SILD
SDA
7874
3V-5V Logic Level Transformer
BC847B
3,2V
0V
5V
+10V
11,6V
7822-B TCA0372
7822-A TCA0372
Changer Control logic
7873 SRG8
EN1
STB
CLK
5,1V
7812 BC847B
Power on
Output enable delay
SW_INFO 1805
TRAY POS
UP/DOWN
POS1
POS rec.
BAS216(4x)
RF-500TB
TRAY-MOTOR
7821-A TCA0372
7821-B TCA0372
CAROUSEL-MOTOR
voltage stabilizer 7875
BZX284-F3V9
BAS216 5,6V version only
+4V
+5V
+5,6V
5V(5,6V)
to combi-board
1805
LEFT
GNDA
RIGHT
+5V(+5,6V)
GND
+10V
SW_INFO
SHR_STR
SHR_CL
SICL
DATA
SILD
GND
PORE
KILL_L
COAX1/+3V
COAX2/EBU
EBU_GND
GND/KILL_R
SRDT
DQSY
uP_CLK
GND
FE-ST-VK-N
BASIC VERSION (15 Pin)
DIGout (19 Pin)
CD-TEXT (23 Pin)
KILL_R_out
KILL_L_out
to 7877 on part 1
from digital-out circuitry
COAX1
COAX2
provisional
CD-TEXT INFO
4V
DQSY
3,3ms
SCLK
SRDT
only during TOC-reading
digital out circuitry - 75Ω version (not on all versions)
from 7877 on part1
DOBM
5802 920927152B
COAX2 to 1805
COAX1
digital out circuitry (not for 75Ω Versions)
CD-Text circuitry (not on all versions)
To/from Signal Processor 7877 Part1
RCK
SUB
SBSY
SFSY
CL11
7,35KHz
11MHz
7876 LC89170M
EXCK
SBSO
SCOR
WFCK
MCK
XMODE
GND
32 x 8 2 PORT RAM
CPU INTERF
CRC CHECK
TIMING & SYNC PROTECTION
VDD
DQSY
SRDT
SCLK
SW2
SW1
TEST
EVM
3CDCLC-MB-DA11 sheet2 2000-09-07

	O4	O5
Tray stop	0V	0V
Moving in	0V	5V
Moving out	5V	0V

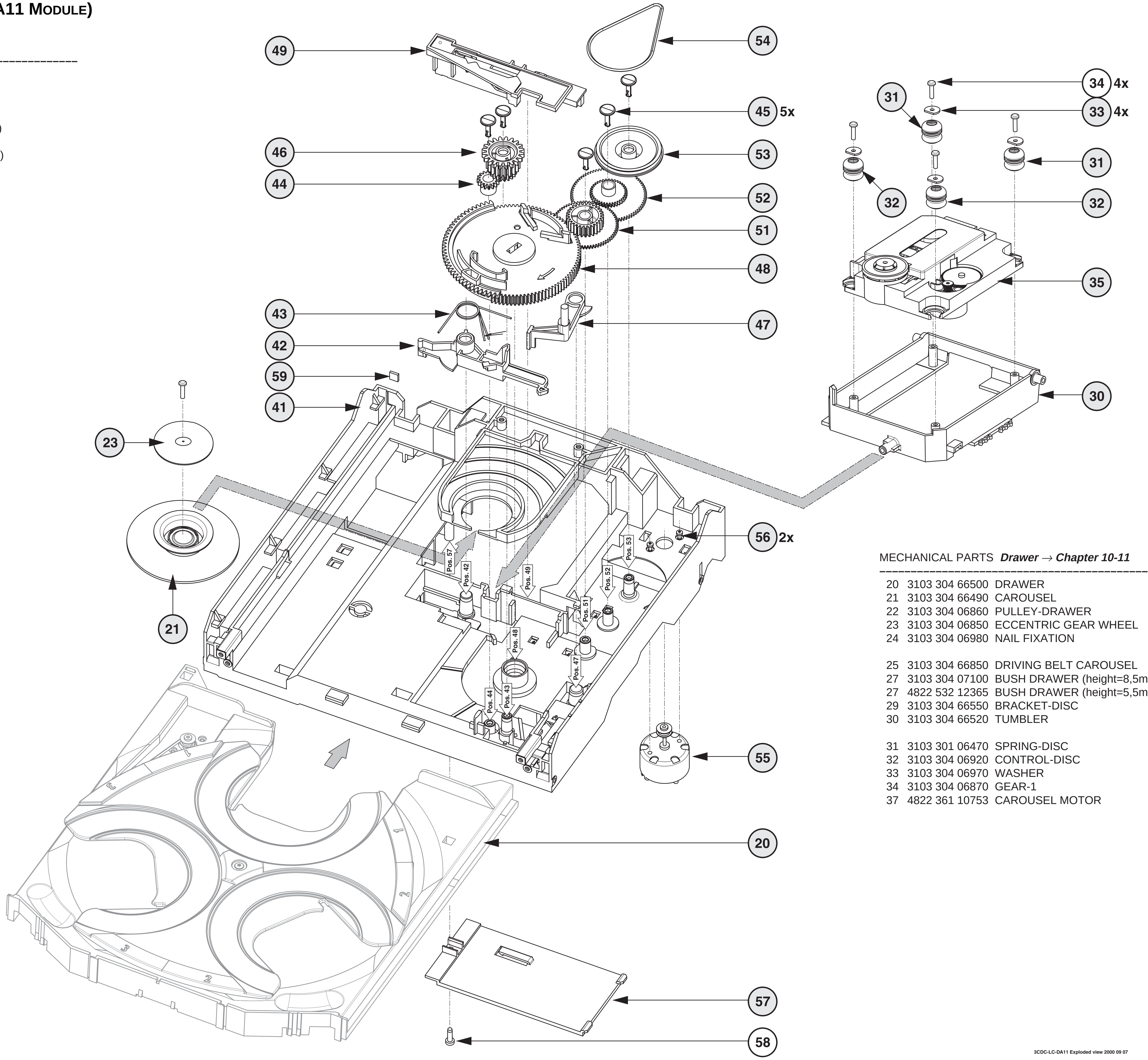
	O6	O7
Carousel stop	0V	0V
Turn left	0V	5V
Turn right	5V	0V

...V DC voltages measured in *PLAY MODE*
with following conditions:
"+10V" = 11,6V
"+5V" = 5V

EXPLODED VIEW (3CDC-LC-DA11 MODULE)

MECHANICAL PARTS ***Loader → this page***

20	3103 304 66500	DRAWER
21	3140 114 29070	PRESSURE RING-DA11
23	3140 111 21270	METAL RING-DA11
30	3103 304 66560	SUPPORT
31	4822 529 10386	DAMPER - RUBBER (Rear)
32	4822 529 10387	DAMPER - RUBBER (Front)
33	3103 304 06970	WASHER
35	3103 309 05310	CD DRIVE DA11T3C
41	3103 304 66480	FRAME
42	3103 304 66540	BRACKET-GUIDING
43	3103 301 06460	SPRING-GUIDING
44	3103 304 06890	GEAR-3
45	3103 304 06980	NAIL FIXATION
46	3103 304 06880	GEAR-2
47	3103 304 66530	BRACKET-LOAD
48	3103 304 06910	CAM
49	3103 304 66510	GUIDING
51	3103 304 06900	GEAR-4
52	3103 304 06870	GEAR-1
53	3103 304 06960	PULLEY-FRAME
54	3103 304 66910	DRIVING-BELT-DRAWER
55	4822 361 10753	TRAY MOTOR
56	4822 502 12548	SCREW M2,6X3,5
57	3103 304 69880	COVER-DA11
59	4822 466 12146	RUBBER



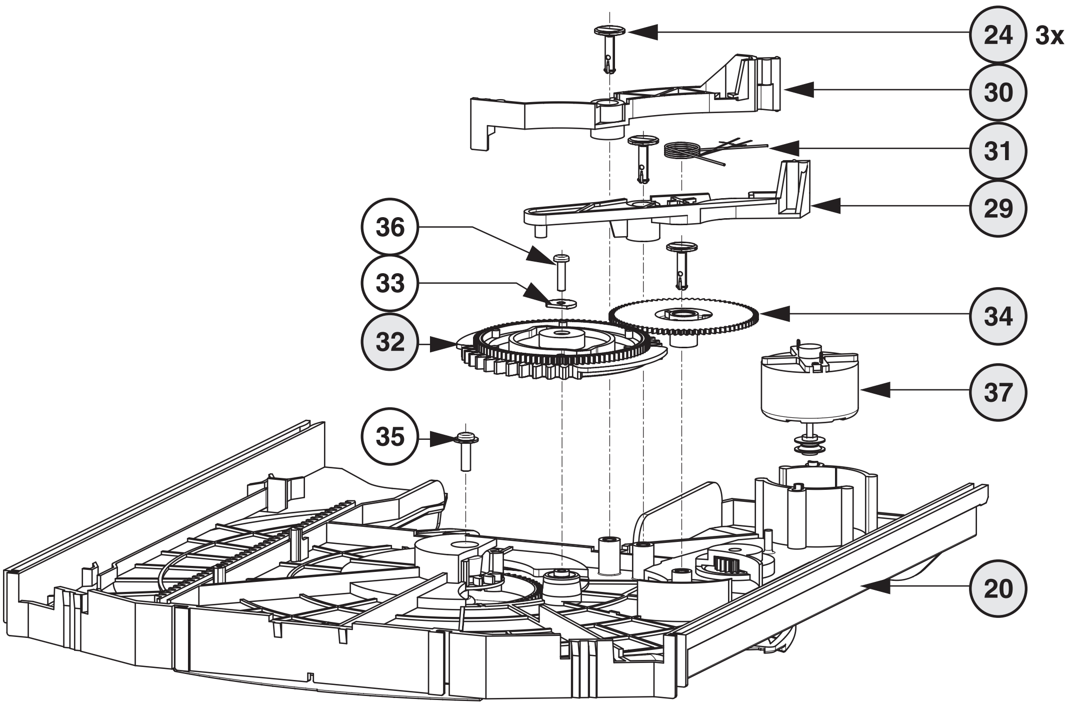
MECHANICAL PARTS ***Drawer → Chapter 10-11***

20	3103 304 66500	DRAWER
21	3103 304 66490	CAROUSEL
22	3103 304 06860	PULLEY-DRAWER
23	3103 304 06850	ECCENTRIC GEAR WHEEL
24	3103 304 06980	NAIL FIXATION
25	3103 304 66850	DRIVING BELT CAROUSEL
27	3103 304 07100	BUSH DRAWER (height=8,5mm,d=16mm)
27	4822 532 12365	BUSH DRAWER (height=5,5mm,d=9,4mm)
29	3103 304 66550	BRACKET-DISC
30	3103 304 66520	TUMBLER
31	3103 301 06470	SPRING-DISC
32	3103 304 06920	CONTROL-DISC
33	3103 304 06970	WASHER
34	3103 304 06870	GEAR-1
37	4822 361 10753	CAROUSEL MOTOR

Ⓧ spare part

Ⓨ non spare part

Drawer bottom view


24 3x
30
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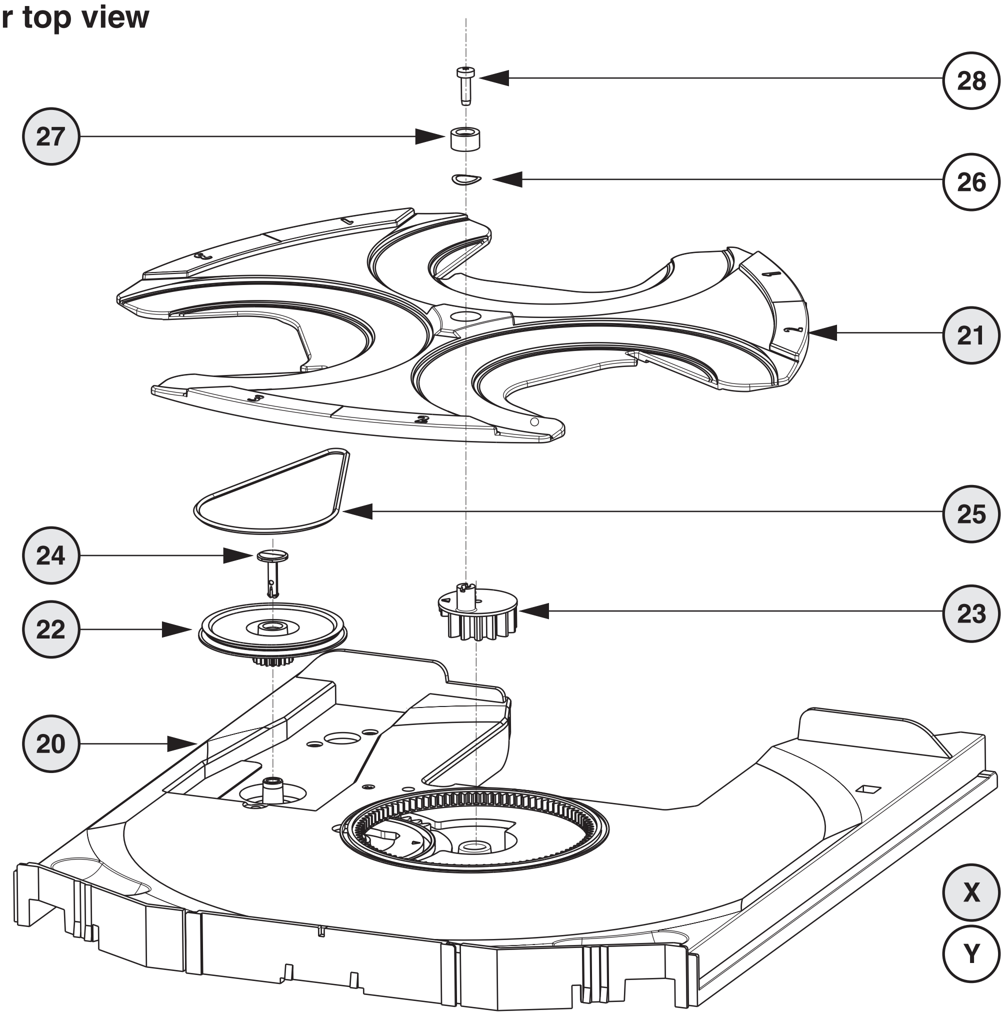
37
35
20

Drawer top view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20

X spare part

Y non spare part

3CDC-LC Drawer assy 1999 09 13

ELECTRICAL PARTSLIST 3CDC-LC-MB-DA11 MODULE

MISCELLANEOUS

37	4822 361 10753	CARROUSEL MOTOR
55	4822 361 10753	CARROUSEL MOTOR
1800	2422 025 12133	FLEX FOIL CONNECTOR 16PIN
1805	4822 265 10979	FLEX FOIL CONNECTOR 15PIN
1805	4822 265 11545	FLEX FOIL CONNECTOR 19PIN
1875	4822 267 10958	FLEX FOIL CONNECTOR 5P
1876	2422 025 08332	FLEX FOIL CONNECTOR 5P
1880	4822 276 13503	SWITCH, Tray in endposition
1881	4822 276 13503	SWITCH, Drive up/down
1882	4822 276 13503	SWITCH, Position 1
1883	4822 276 13503	SWITCH, Position recogiced
8002	3103 308 91990	FLEX FOIL CABLE 5P, 200mm
8005	3103 308 92620	FLEX FOIL CABLE 16P, 170mm
8005	3103 308 91980	FLEX FOIL CABLE 15P, 170mm

CAPACITORS

2800©	4822 126 14508	180pF	5%	50V
2801©	4822 126 13883	220pF	5%	50V
2802©	4822 126 14508	180pF	5%	50V
2803©	4822 126 13883	220pF	5%	50V
2804©	3198 024 44730	47nF	5%	50V
2805©	4822 126 13883	220pF	5%	50V
2806©	4822 126 13883	220pF	5%	50V
2807©	4822 126 14508	180pF	5%	50V
2808©	4822 126 13883	220pF	5%	50V
2809©	4822 126 13883	220pF	5%	50V
2810©	4822 122 31765	100pF	5%	50V
2811©	4822 126 13883	220pF	5%	50V
2812©	4822 126 14585	100nF	10%	50V
2813©	4822 126 14585	100nF	10%	50V
2814	4822 124 40433	47µF	20%	25V
2815©	4822 126 13879	220nF	20%	16V
2816©	4822 126 13344	1,5nF	5%	63V
2817©	4822 126 14585	100nF	10%	50V
2818©	4822 126 13344	1,5nF	5%	63V
2819	4822 124 40433	47µF	20%	25V
2820	4822 124 40433	47µF	20%	25V
2821©	4822 126 14585	100nF	10%	50V
2822©	2222 861 15222	2,2nF	10%	50V
2823©	4822 126 14225	56pF	5%	50V
2824©	4822 126 13751	47nF	10%	50V
2825©	5322 126 11583	10nF	10%	63V
2826	4822 124 12362	47µF	20%	4V
2828	4822 124 12362	47µF	20%	4V
2829©	5322 126 11578	1nF	10%	63V
2830©	4822 126 13751	47nF	10%	50V
2831©	4822 122 31765	100pF	5%	50V
2832©	4822 122 31765	100pF	5%	50V
2833©	4822 126 11671	33pF	5%	50V
2834©	4822 126 11671	33pF	5%	50V
2835©	3198 024 44730	47nF	5%	50V
2836©	4822 126 14585	100nF	10%	50V
2837	4822 124 40433	47µF	20%	25V
2838	4822 124 40248	10µF	20%	63V
2839©	4822 126 14585	100nF	10%	50V
2840©	4822 126 14585	100nF	10%	50V
2841©	5322 122 31647	1nF	10%	63V
2842©	4822 126 13883	220pF	5%	50V
2843©	4822 126 14585	100nF	10%	50V
2844©	5322 122 34099	470pF	10%	63V
2845©	4822 126 14585	100nF	10%	50V
2846©	4822 126 13883	220pF	5%	50V
2847©	4822 126 14585	100nF	10%	50V
2848©	4822 122 33753	150pF	5%	50V
2849	4822 124 40769	4,7µF	20%	100V
2850©	5322 126 11578	1nF	10%	63V
2851	4822 124 42383	220µF	20%	4V
2854©	4822 126 13751	47nF	10%	50V
2855©	4822 126 14508	180pF	5%	50V
2856©	4822 126 11669	27pF	10%	50V
2857©	4822 126 13883	220pF	5%	50V
2858	4822 124 12245	220µF	20%	16V
2859©	4822 126 13883	220pF	5%	50V
2860	4822 124 11947	10µF	20%	16V
2861	4822 124 11947	10µF	20%	16V
2862©	4822 126 13883	220pF	5%	50V
2863©	4822 126 13883	220pF	5%	50V
2864©	4822 122 33761	22pF	5%	50V
2865©	4822 126 14494	22nF	10%	25V
2866©	4822 122 33753	150pF	5%	50V
2867©	4822 126 13883	220pF	5%	50V
2868©	5322 126 11578	1nF	10%	63V
2869©	3198 024 44730	47nF	5%	50V
2870©	4822 126 14585	100nF	10%	50V
2871©	4822 126 14585	100nF	10%	50V
2872©	3198 024 44730	47nF	5%	50V
2873	4822 124 40433	47µF	20%	25V
2874©	4822 126 14585	100nF	10%	50V
2875©	3198 017 41050	1µF	20%	10V
2876	4822 124 12245	220µF	20%	16V
2877©	4822 122 33777	47pF	5%	63V
2878©	4822 126 13883	220pF	5%	50V
2879©	4822 126 14585	100nF	10%	50V
2880©	3198 017 41050	1µF	20%	10V
2881	4822 124 40769	4,7µF	20%	100V
2882©	4822 126 13883	220pF	5%	50V
2883©	4822 126 14585	100nF	10%	50V
2884	4822 124 40769	4,7µF	20%	100V
2885	4822 124 40769	4,7µF	20%	100V
2887©	4822 126 14585	100nF	10%	50V
2888	4822 124 40769	4,7µF	20%	100V
2891©	4822 126 13883	220pF	5%	50V
2892©	5322 126 10223	4,7nF	10%	63V
2893©	4822 122 33575	220pF	5%	50V
2900©	4822 126 14508	180pF	5%	50V

RESISTORS

3701©	4822 051 30474	470kΩ	5%	0,06W
3702©	4822 051 30474	470kΩ	5%	0,06W
3703©	4822 117 12925	47kΩ	1%	0,06W
3704©	4822 117 12925	47kΩ	1%	0,06W
3709©	4822 117 10833	10kΩ	1%	0,1W
3710©	4822 051 30474	470kΩ	5%	0,06W
3712©	4822 051 30109	10Ω	5%	0,06W
3713©	4822 051 20223	22kΩ	5%	0,1W
3714©	4822 051 30103	10kΩ	5%	0,06W
3715©	4822 117 13632	100kΩ	1%	0,06W
3716©	4822 051 30471	470Ω	5%	0,06W
3719©	4822 051 30474	470kΩ	5%	0,06W
3727©	4822 051 30472	4,7kΩ	5%	0,06W
3728©	4822 051 30472	4,7kΩ	5%	0,06W
3730©	4822 051 20333	33kΩ	5%	0,1W

ELECTRICAL PARTSLIST 3CDC-LC-MB-DA11 MODULE

RESISTORS

3740©	4822 051 20223	22kΩ	5%	0,1W
3741©	4822 051 20223	22kΩ	5%	0,1W
3742©	4822 051 20223	22kΩ	5%	0,1W
3743©	4822 051 20223	22kΩ	5%	0,1W
3744©	4822 051 30103	10kΩ	5%	0,06W
3746©	4822 051 30103	10kΩ	5%	0,06W
3750©	4822 051 30102	1kΩ	5%	0,06W
3751©	4822 051 30102	1kΩ	5%	0,06W
3752©	4822 051 20399	39Ω	5%	0,1W
3753©	4822 117 12925	47kΩ	1%	0,06W
3754©	4822 051 30273	27kΩ	5%	0,06W
3755©	4822 051 30103	10kΩ	5%	0,06W
3756©	4822 051 30333	33kΩ	5%	0,06W
3757©	4822 051 20399	39Ω	5%	0,1W
3758©	4822 051 30103	10kΩ	5%	0,06W
3759©	4822 051 30333	33kΩ	5%	0,06W
3760©	4822 051 20399	39Ω	5%	0,1W
3761©	4822 051 30103	10kΩ	5%	0,06W
3762©	4822 051 30333	33kΩ	5%	0,06W
3763©	4822 051 30479	47Ω	5%	0,06W
3764©	4822 051 30103	10kΩ	5%	0,06W
3765©	4822 051 30333	33kΩ	5%	0,06W
3766©	4822 051 30479	47Ω	5%	0,06W
3773©	4822 051 30273	27kΩ	5%	0,06W
3775©	4822 051 30273	27kΩ	5%	0,06W
3800©	4822 051 30563	56kΩ	5%	0,06W
3801©	4822 051 30103	10kΩ	5%	0,06W
3802©	4822 117 11148	56kΩ	1%	0,1W
3803©	4822 051 30103	10kΩ	5%	0,06W
3804©	4822 051 30103	10kΩ	5%	0,06W
3805©	4822 051 30103	10kΩ	5%	0,06W
3806©	4822 051 30103	10kΩ	5%	0,06W
3807©	4822 051 30103	10kΩ	5%	0,06W
3808©	4822 051 30103	10kΩ	5%	0,06W
3809©	4822 117 13577	330Ω	1%	0,1W
3810©	4822 051 20399	39Ω	5%	0,1W
3811©	4822 117 11148	56kΩ	1%	0,1W
3812©	4822 117 12925	47kΩ	1%	0,06W
3813©	4822 051 20399	39Ω	5%	0,1W
3814©	4822 051 30339	33Ω	5%	0,06W
3815	4822 052 10478	4,7Ω	5%	NFR
3816©	4822 117 12925	47kΩ	1%	0,06W
3817	4822 052 10228	2,2Ω	5%	0,33W
3818©	4822 051 20399	39Ω	5%	0,1W
3819©	4822 051 20471	470Ω	5%	0,1W
3820©	4822 051 30682	6,8kΩ	5%	0,06W
3821©	4822 117 11507	6,8kΩ	1%	0,1W
3822©	4822 051 30682	6,8kΩ	5%	0,06W
3823©	4822 051 30102	1kΩ	5%	0,06W
3824©	4822 051 30102	1kΩ	5%	0,06W
3825©	4822 051 10102	1kΩ	2%	0,25W
3826©	4822 051 30223	22kΩ	5%	0,06W
3827©	4822 051 20273	27kΩ	5%	0,1W
3828©	4822 051 20223	22kΩ	5%	0,1W
3829©	4822 117 12925	47kΩ	1%	0,06W
3830©	4822 051 30273	27kΩ	5%	0,06W
3831©	4822 051 30101	100Ω	5%	0,06W
3832©	4822 051 30103	10kΩ	5%	0,06W
3833©	4822 051 30393	39kΩ	5%	0,06W
3834©	4822 051 20393	39kΩ	5%	0,1W

RESISTORS

3835©	4822 117 12925	47kΩ	1%	0,06W
3836©	4822 051 30273	27kΩ	5%	0,06W
3837©	4822 051 10102	1kΩ	2%	0,25W
3838©	4822 051 30102	1kΩ	5%	0,06W
3839©	4822 051 20273	27kΩ	5%	0,1W
3840©	4822 051 20273	27kΩ	5%	0,1W
3841©	4822 117 12925	47kΩ	1%	0,06W
3842©	4822 117 10833	10kΩ	1%	0,1W
3843©	4822 117 12955	2,7kΩ	1%	0,1W
3844©	4822 117 12024	27kΩ	1%	0,1W
3845©	4822 117 10833	10kΩ	1%	0,1W
3846©	4822 117 12955	2,7kΩ	1%	0,1W
3847©	4822 051 20399	39Ω	5%	0,1W
3848©	4822 117 10965	18kΩ	2%	0,1W
3849©	4822 051 30183	18kΩ	5%	0,06W
3850©	4822 051 20399	39Ω	5%	0,1W
3851	4822 052 10228	2,2Ω	5%	0,33W
3852	4822 052 10228	2,2Ω	5%	0,33W
3853©	4822 051 30471	470Ω	5%	0,06W
3854©	4822 051 30101	100Ω	5%	0,06W
3855©	4822 051 30101	100Ω	5%	0,06W
3856©	4822 117 12521	68Ω	1%	0,1W
3857©	4822 117 12521	68Ω	1%	0,1W
3858©	4822 051 30223	22kΩ	5%	0,06W
3859©	4822 051 20223	22kΩ	5%	0,1W
3860©	4822 117 10833	10kΩ	1%	0,1W
3861©	4822 051 30103	10kΩ	5%	0,06W
3862©	4822 051 20121	120Ω	5%	0,1W
3863©	4822 051 20101	100Ω	5%	0,1W
3863©	4822 051 20339	33Ω	5%	0,1W
3864©	4822 051 20101	100Ω	5%	0,1W
3865	4822 052 10228	2,2Ω	5%	0,33W
3866©	4822 051 30103	10kΩ	5%	0,06W
3867©	4822 051 30121	120Ω	5%	0,06W
3869©	4822 117 13608	4,7Ω	5%	0,06W
3870©	4822 051 30101	100Ω	5%	0,06W
3871©	4822 051 30103	10kΩ	5%	0,06W
3873©	4822 051 20471	470Ω	5%	0,1W
3875©	4822 051 30103	10kΩ	5%	0,06W
3876©	4822 117 13632	100kΩ	1%	0,06W
3877©	4822 051 30103	10kΩ	5%	0,06W
3878©	4822 051 30103	10kΩ	5%	0,06W
3879©	4822 051 30273	27kΩ	5%	0,06W
3880©	4822 051 30474	470kΩ	5%	0,06W
3881©	4822 051 30273	27kΩ	5%	0,06W
3882©	4822 051 30474	470kΩ	5%	0,06W
3883©	4822 051 20273	27kΩ	5%	0,1W
3884©	4822 051 30474	470kΩ	5%	0,06W
3885©	4822 051 20273	27kΩ	5%	0,1W
3886©	4822 051 30474	470kΩ	5%	0,06W
3887©	4822 051 30221	220Ω	5%	0,06W
3888©	4822 117 10833	10kΩ	1%	0,1W
3889©	4822 051 20471	470Ω	5%	0,1W
3890©	4822 051 30102	1kΩ	5%	0,06W
3891©	4822 051 30102	1kΩ	5%	0,06W
3892©	4822 051 20471	470Ω	5%	0,1W
3893©	4822 051 30471	470Ω	5%	0,06W
3894©	4822 051 30101	100Ω	5%	0,06W
3895©	4822 117 12971	15Ω	5%	0,06W
3896	4822 052 10228	2,2Ω	5%	0,33W

ELECTRICAL PARTSLIST 3CDC-LC-MB-DA11 MODULE

RESISTORS

3897	©	4822 051 20101	100Ω	5%	0,1W
3898	©	4822 117 11503	220Ω	5%	0,1W
3899	©	4822 051 30101	100Ω	5%	0,06W
3900	©	4822 117 11148	56kΩ	1%	0,1W
3901	©	4822 051 30682	6,8kΩ	5%	0,06W
4800	©	4822 051 20008	CHIP JUMPER 0805		
4801	©	4822 051 20008	CHIP JUMPER 0805		
4802	©	4822 051 20008	CHIP JUMPER 0805		
4804	©	4822 051 20008	CHIP JUMPER 0805		
4805	©	4822 051 30008	CHIP JUMPER 0603		
4806	©	4822 051 20008	CHIP JUMPER 0805		
4807	©	4822 051 20008	CHIP JUMPER 0805		
4808	©	4822 051 20008	CHIP JUMPER 0805		
4809	©	4822 051 20008	CHIP JUMPER 0805		
4810	©	4822 051 20008	CHIP JUMPER 0805		
4812	©	4822 051 20008	CHIP JUMPER 0805		
4814	©	4822 051 20008	CHIP JUMPER 0805		
4815	©	4822 051 20008	CHIP JUMPER 0805		
4816	©	4822 051 20008	CHIP JUMPER 0805		
4817	©	4822 051 30008	CHIP JUMPER 0603		
4818	©	4822 051 20008	CHIP JUMPER 0805		
4819	©	4822 051 20008	CHIP JUMPER 0805		
4820	©	4822 051 20008	CHIP JUMPER 0805		
4821	©	4822 051 20008	CHIP JUMPER 0805		
4822	©	4822 051 20008	CHIP JUMPER 0805		
4823	©	4822 051 20008	CHIP JUMPER 0805		
4824	©	4822 051 20008	CHIP JUMPER 0805		
4825	©	4822 051 30008	CHIP JUMPER 0603		
4826	©	4822 051 20008	CHIP JUMPER 0805		
4827	©	4822 051 30008	CHIP JUMPER 0603		
4828	©	4822 051 20008	CHIP JUMPER 0805		
4831	©	4822 051 20008	CHIP JUMPER 0805		
4832	©	4822 051 30008	CHIP JUMPER 0603		
4834	©	4822 051 30008	CHIP JUMPER 0603		
4835	©	4822 051 30008	CHIP JUMPER 0603		
4836	©	4822 051 20008	CHIP JUMPER 0805		
4838	©	4822 051 20008	CHIP JUMPER 0805		
4840	©	4822 051 20008	CHIP JUMPER 0805		
4841	©	4822 051 20008	CHIP JUMPER 0805		
4842	©	4822 051 20008	CHIP JUMPER 0805		
4843	©	4822 051 20008	CHIP JUMPER 0805		
4844	©	4822 051 20008	CHIP JUMPER 0805		
4845	©	4822 051 20008	CHIP JUMPER 0805		
4846	©	4822 051 30008	CHIP JUMPER 0603		
4847	©	4822 051 20008	CHIP JUMPER 0805		
4849	©	4822 051 30008	CHIP JUMPER 0603		
4856	©	4822 051 20008	CHIP JUMPER 0805		
4857	©	4822 051 20008	CHIP JUMPER 0805		
4858	©	4822 051 20008	CHIP JUMPER 0805		
4859	©	4822 051 30008	CHIP JUMPER 0603		
4860	©	4822 051 30008	CHIP JUMPER 0603		
4861	©	4822 051 20008	CHIP JUMPER 0805		
4862	©	4822 051 30008	CHIP JUMPER 0603		
4863	©	4822 051 30008	CHIP JUMPER 0603		
4864	©	4822 051 20008	CHIP JUMPER 0805		
4865	©	4822 051 20008	CHIP JUMPER 0805		
4867	©	4822 051 20008	CHIP JUMPER 0805		
4868	©	4822 051 20008	CHIP JUMPER 0805		
4869	©	4822 051 20008	CHIP JUMPER 0805		
4870	©	4822 051 20008	CHIP JUMPER 0805		

RESISTORS

4876	©	4822 051 20008	CHIP JUMPER 0805
4879	©	4822 051 20008	CHIP JUMPER 0805
4884	©	4822 051 20008	CHIP JUMPER 0805
4885	©	4822 051 20008	CHIP JUMPER 0805
4886	©	4822 051 20008	CHIP JUMPER 0805
4887	©	4822 051 20008	CHIP JUMPER 0805
4890	©	4822 051 20008	CHIP JUMPER 0805
4893	©	4822 051 20008	CHIP JUMPER 0805
4894	©	4822 051 20008	CHIP JUMPER 0805
4896	©	4822 051 30008	CHIP JUMPER 0603
4897	©	4822 051 20008	CHIP JUMPER 0805

COILS

1810		2422 543 01068	RESONATOR 8MHZ
1810		4822 242 73557	CERAMIC RES. 8,46MHz
5802		4822 157 70601	100µH

DIODES

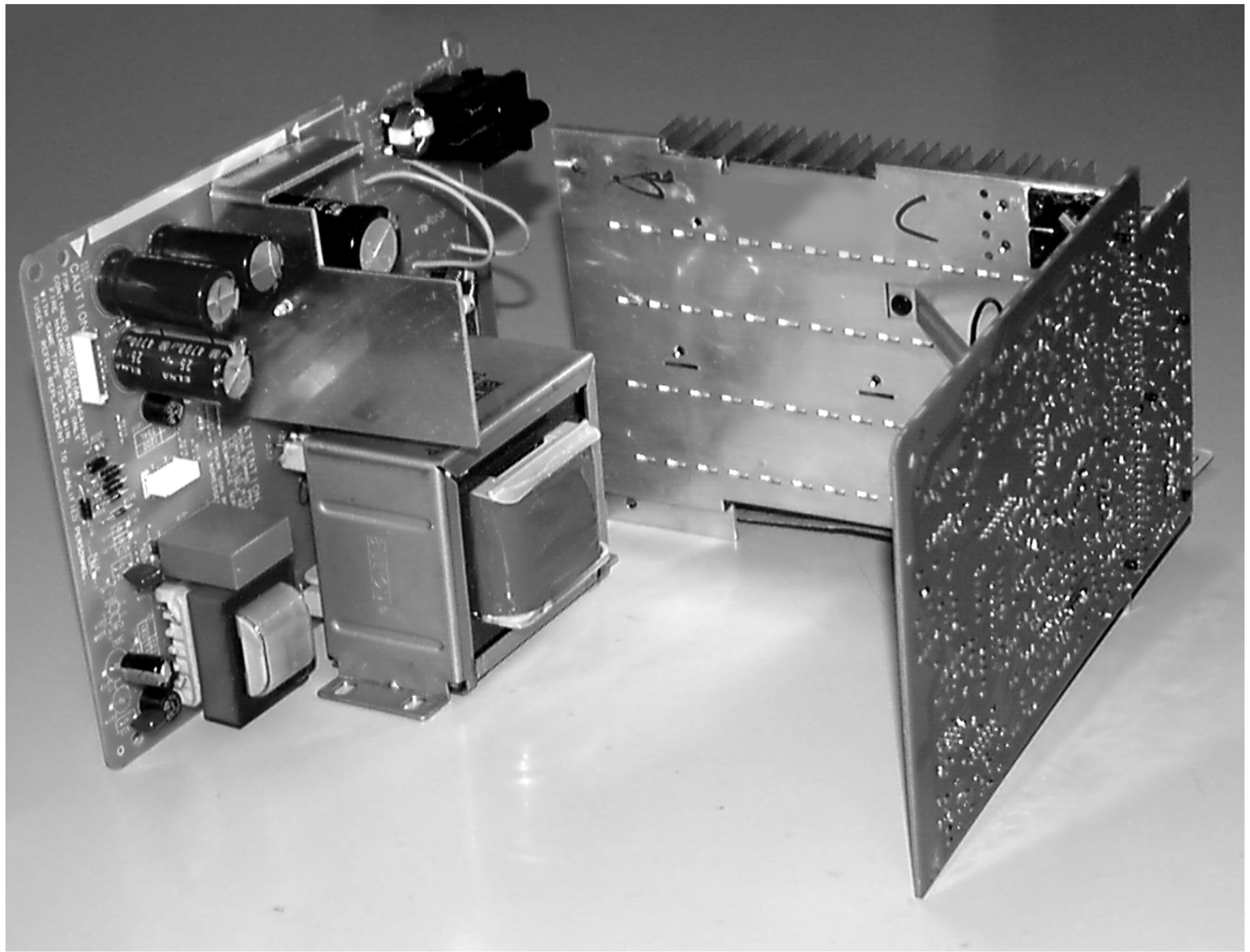
6871	©	4822 130 11397	BAS316
6872	©	4822 130 11397	BAS316
6873	©	4822 130 11397	BAS316
6874	©	4822 130 11397	BAS316
6875	©	9340 548 52115	BZX284-C5V1
6877	©	9322 129 34685	BZX284-C3V9
6878	©	4822 130 11397	BAS316
6879	©	9322 129 34685	BZX284-C3V9

TRANSISTORS

7812	©	5322 130 60159	BC846B
7874	©	5322 130 60159	BC846B
7875	©	5322 130 60159	BC846B

INTEGRATED CIRCUITS

7801	©	9352 622 36118	TZA1025T/V2, HF-Amplifier
7805	©	4822 209 33165	TDA1308T/N1, OPAMP
7806		4822 209 62059	TCA0372DP1, Motor driver
7807		4822 209 62059	TCA0372DP1, Motor driver
7808		4822 209 62059	TCA0372DP1, Motor driver
7821		4822 209 62059	TCA0372DP1, Motor driver
7822		4822 209 62059	TCA0372DP1, Motor driver
7873		5322 209 11306	HEF4094BT, Shift register
7877	©	9352 642 17557	SAA7325H/M2B Signal processor CD10



POWER 2001 Module

(30 - 70W Version)

stage .7

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Circuit Diagram ***Mains part*** 11-5
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Partslist 11-8

Circuit details:

Amplifier:

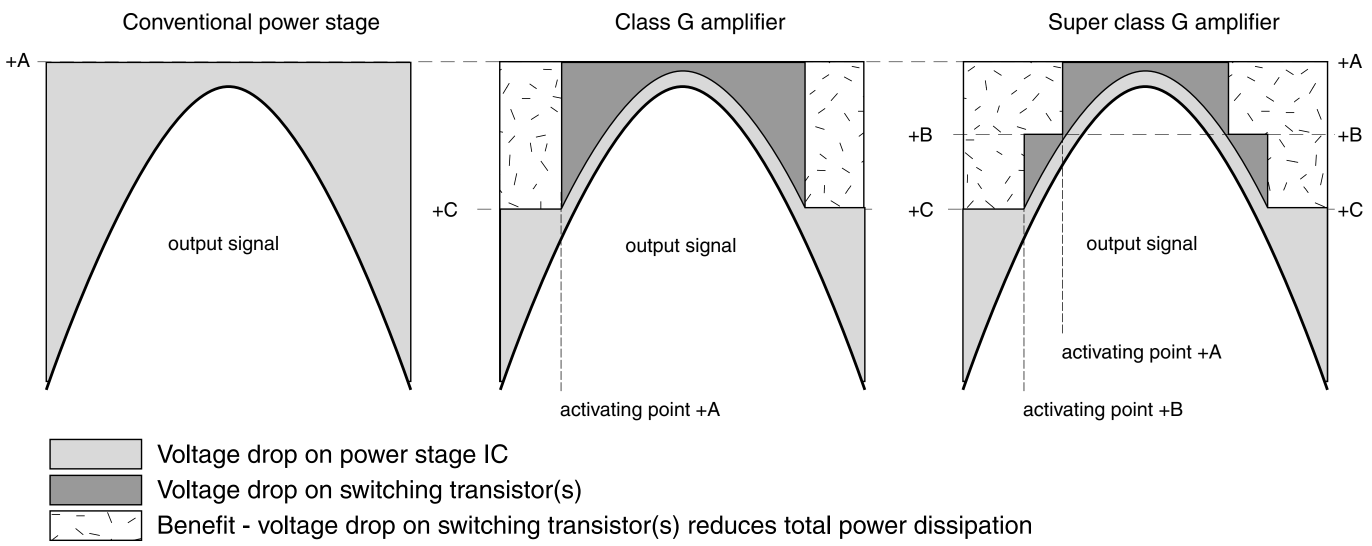
Attention: In the POWER 2001 module the power amplifier IC AN7591 is used as a bridge-amplifier.
Any connection from output to ground will destroy the outpout stages!

- Via the AMP_ON control line, connected to pins 6 (Stby), the power amplifiers are switched on/off by the µP.
  High level (approx. 4,5V): power amplifiers switched on
  Low level (approx. 0V): power amplifiers switched off

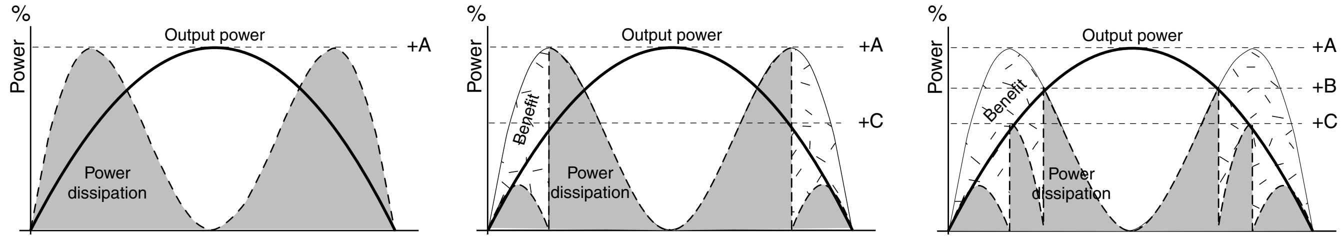
- Super class G - operation

  The power amplifiers operate as so-called super class G - amplifiers:
  The supply pins 12 (Vcc) are not just connected to one fixed DC-supply as in conventional amplifiers.
  Dependent on the output power there are three different DC-voltages supplied to the power amplifiers:
  ⇒ +C1 (+20V) for low output power
  ⇒ +B1 (+29V) for medium output power
  ⇒ +A1 (+41V for high output power

Principle / benefit of Super Class G



░ Voltage drop on power stage IC
▓ Voltage drop on switching transistor(s)
▨ Benefit - voltage drop on switching transistor(s) reduces total power dissipation



Circuit details continued:

- **Low power standby feature**

An additional small standby transformer, reduces power consumption in standby-mode.
In case power is switched on, the control line ECO is low → relay 1210 is activated → contacts 1 and 2 are closed → transformer 5001is connected to mains.
When the set is switched off (standby) the control line ECO is high → relay 1210 is not activated → mainstransformer is disconnected. Via standby transformer and rectifiers 6210-6214 the supply voltage LOW_PWR_SUP is substituted. This voltage is always available and so the microprocessor is kept running.

- **DC voltages +A1, +B1, +C1**

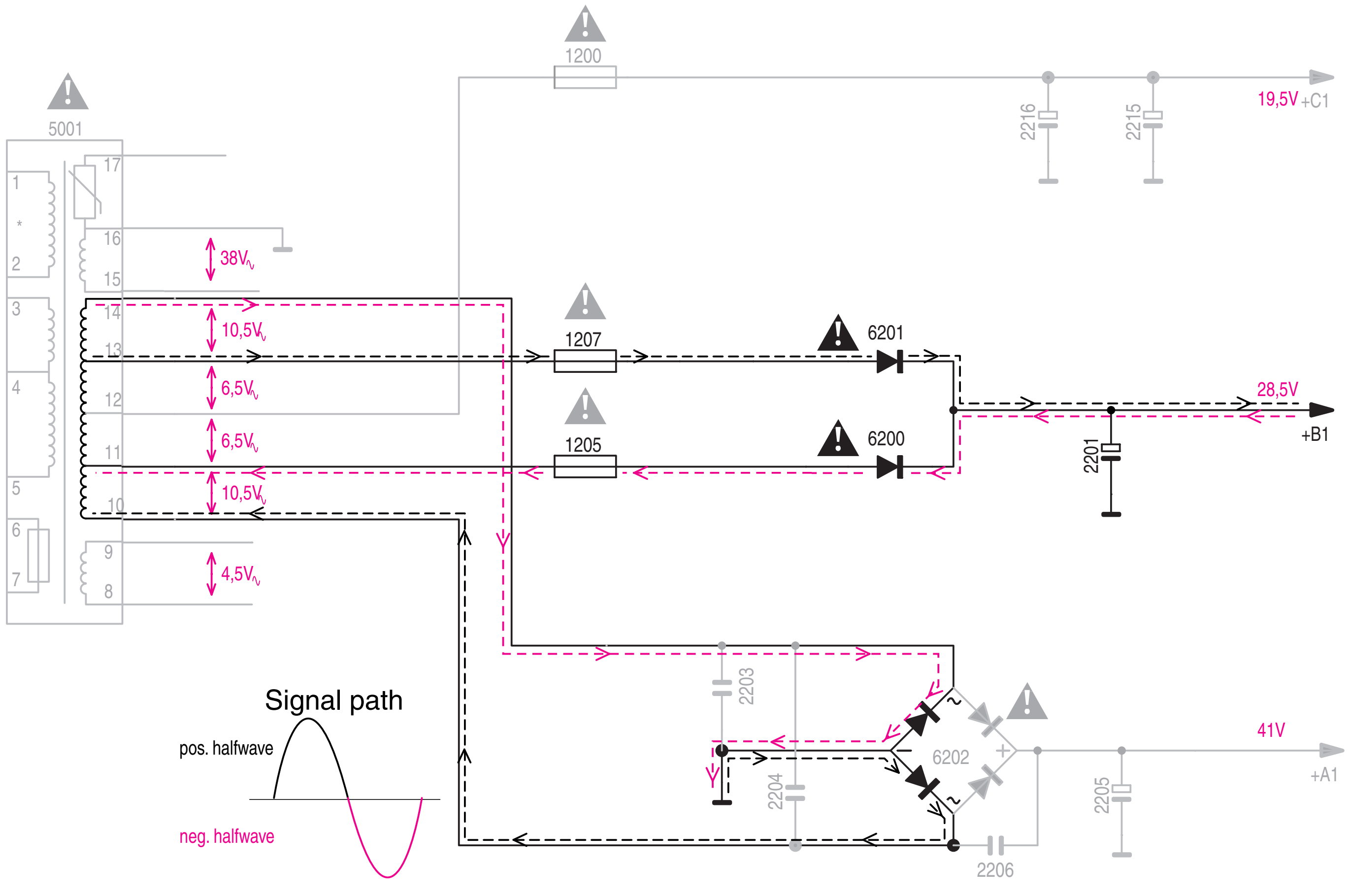
These voltages supply the Super Class G amplifier, described on previous page.
The whole power supply is optimized for the special characteristic of this type of amplifier. For that reason several “tricky” details have been applied to ensure optimal efficiency and symmetrical load to the mains transformer.

Generation of +A1

Common full wave rectifying with bridge rectifier 6202, using 100% secondary winding of mains transformer (pin 10-14).

Generation of +B1

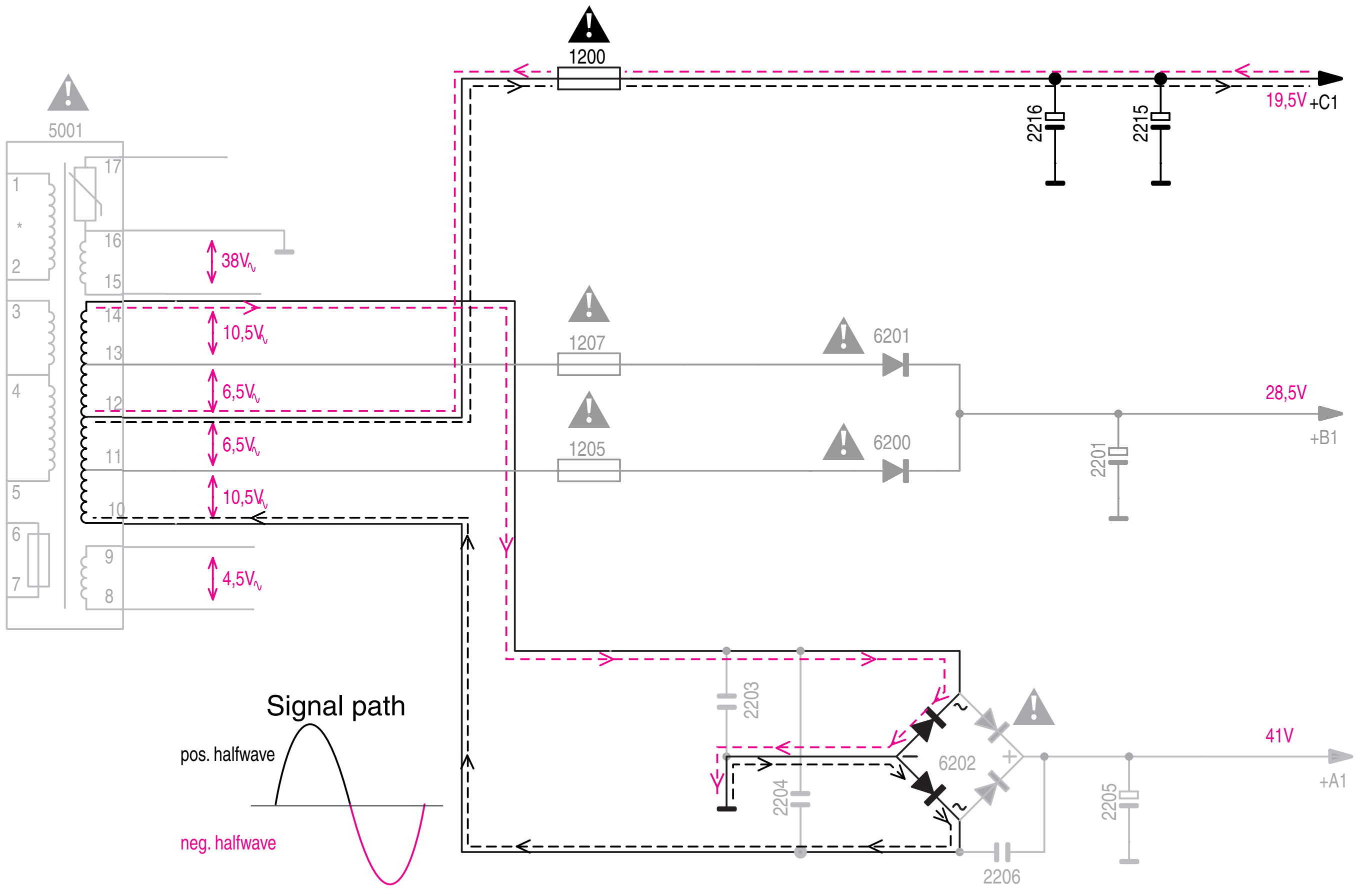
The supply for +B1 consists of one full wave rectifier:
– 2 diodes of bridge rectifier 6202, with 6200(6220 in parallel) 6201(6221 in parallel) for generation of +B1using approx. 70% secondary winding of mains transformer (pin 10-13 respectively pin 11-14).
As example for generation of +B1 see picture 1.


5001
1200
2216
2215
19,5V
+C1
38V~
10,5V~
6,5V~
6,5V~
10,5V~
4,5V~
1207
1205
6201
6200
28,5V
+B1
2201
2203
2204
6202
2205
2206
41V
+A1
Signal path
pos. halfwave
neg. halfwave

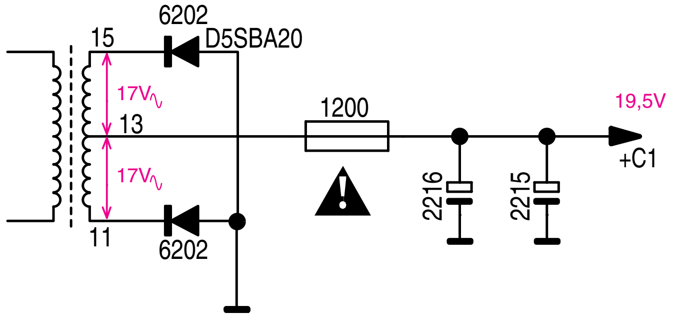
picture 1

Generation of +C1

Full wave rectifying with 2 diodes of bridge rectifier 6202, using 50% secondary winding of mains transformer (pin 13-15/13-11).
See picture 2 below.

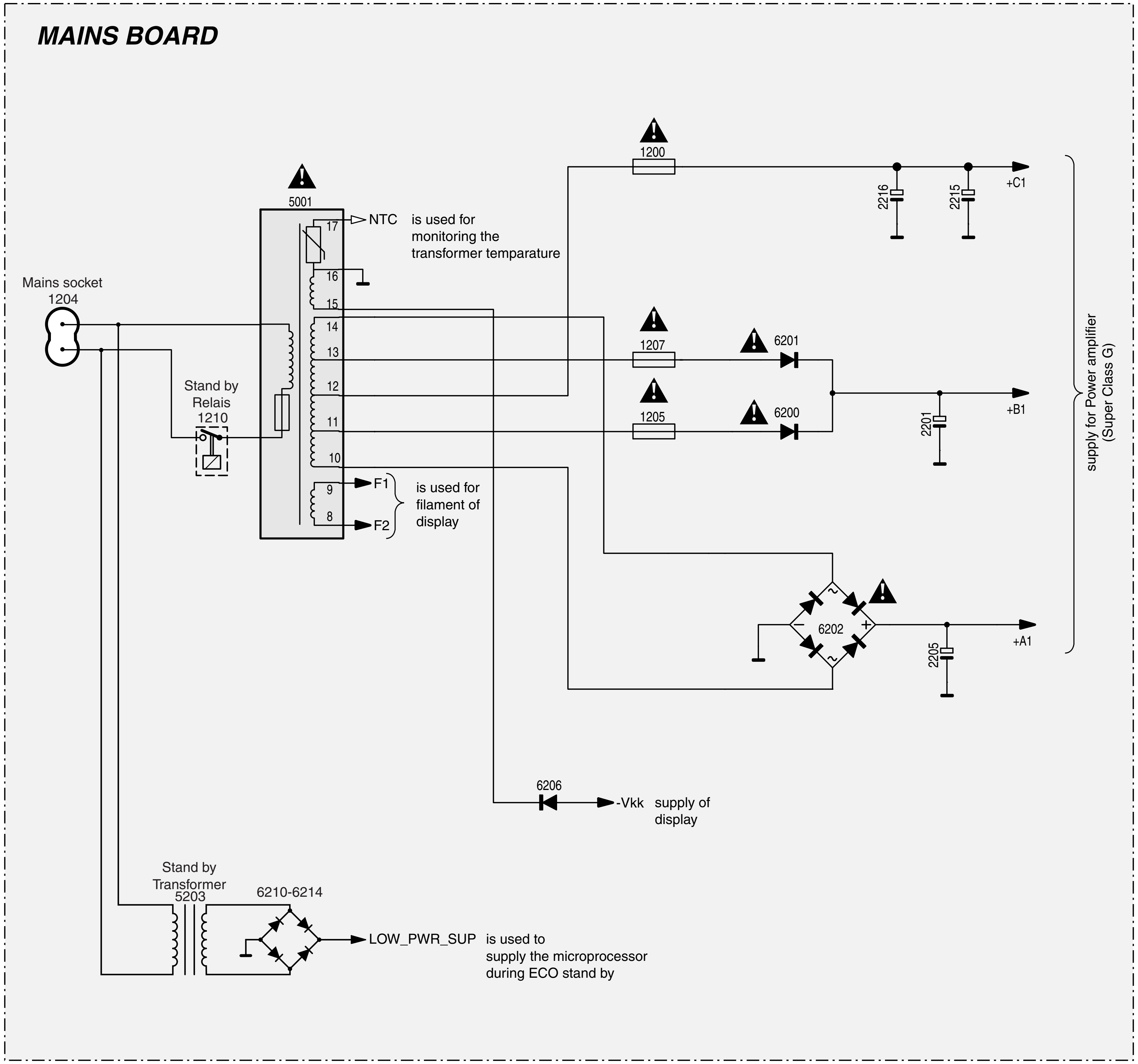

1200
5001
2216
2215
19,5V
+C1
38V~
10,5V~
6,5V~
6,5V~
10,5V~
4,5V~
1207
1205
6201
6200
28,5V
+B1
2201
2203
2204
6202
2205
2206
41V
+A1
Signal path
pos. halfwave
neg. halfwave

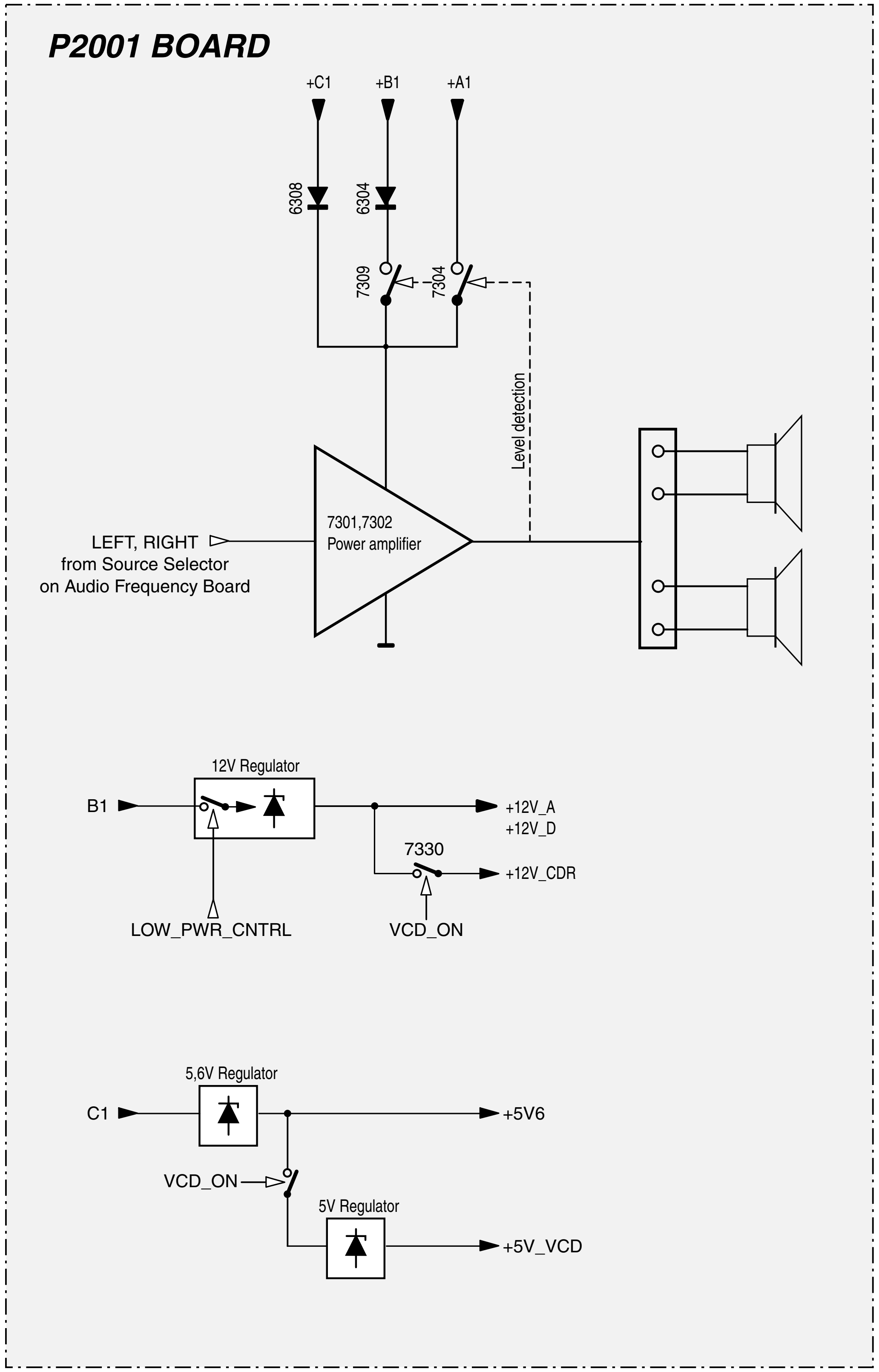
simplified:


15
6202
D5SBA20
17V~
13
17V~
11
6202
1200
2216
2215
19,5V
+C1

picture 2

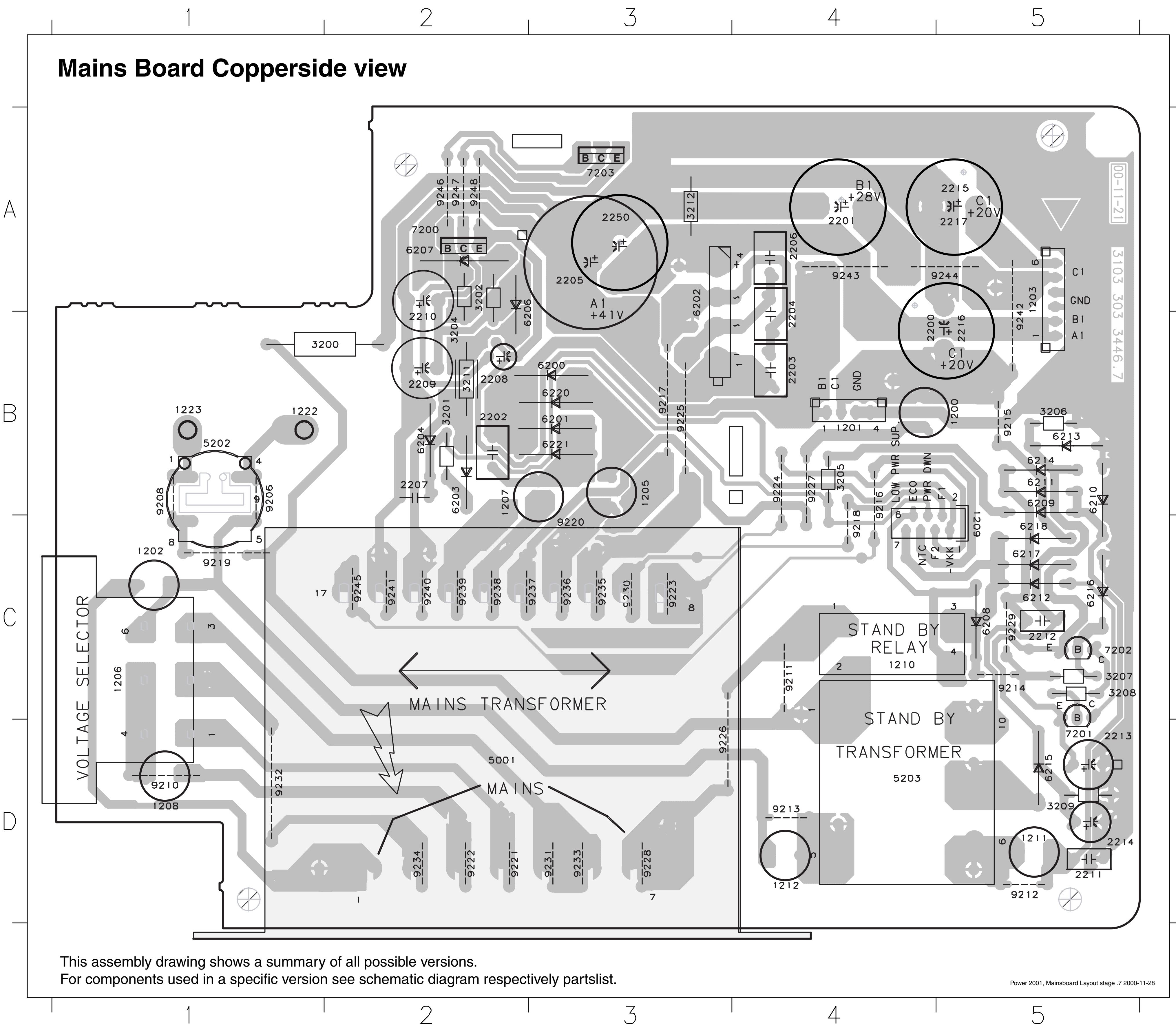
Block Diagram


MAINS BOARD
Mains socket
1204
Stand by
Relais
1210
5001
17
16
15
14
13
12
11
10
9
8
NTC
is used for
monitoring the
transformer temparature
F1
F2
is used for
filament of
display
1200
2216
2215
+C1
1207
6201
1205
6200
2201
+B1
6202
2205
+A1
supply for Power amplifier
(Super Class G)
6206
-Vkk
supply of
display
Stand by
Transformer
5203
6210-6214
LOW_PWR_SUP
is used to
supply the microprocessor
during ECO stand by


P2001 BOARD
+C1
+B1
+A1
6308
6304
7309
7304
Level detection
LEFT, RIGHT
from Source Selector
on Audio Frequency Board
7301,7302
Power amplifier
12V Regulator
B1
+12V_A
+12V_D
7330
+12V_CDR
LOW_PWR_CNTRL
VCD_ON
5,6V Regulator
C1
+5V6
VCD_ON
5V Regulator
+5V_VCD

Blockdiagram Power2001 30-70W, 26 09 2000

Mains Board Copperside view

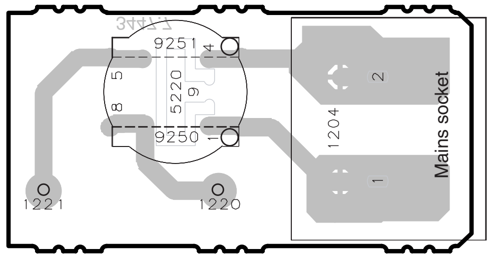

1
2
3
4
5
A
B
C
D
B1 +28V
C1 +20V
A1 +41V
C1 +20V
7203
7200
6207
2250
2205
2201
2215
2217
2200
2216
9243
9244
9242
1203
C1
GND
B1
A1
3200
2210
2209
2208
3211
3201
3202
3204
6206
6200
6220
6201
6221
2202
6204
6203
2207
1207
9220
1205
6202
2206
2204
2203
3212
B1 C1 GND
1201
1200
9215
3206
6213
6214
6211
6209
6218
6217
6212
6210
6216
6208
9229
2212
7202
3207
3208
7201
2213
6215
3209
2214
2211
1211
9212
9213
1212
1223
1222
5202
9208
9206
1202
9219
VOLTAGE SELECTOR
1206
9210
1208
9232
9245
9241
9240
9239
9238
9237
9236
9235
9230
9223
MAINS TRANSFORMER
5001
MAINS
9226
9234
9222
9221
9231
9233
9228
9217
9225
9224
9227
3205
9218
9216
LOW PWR SUP.
ECO
PWR DWN
F1
NTC
F2
-VKK
6021
STAND BY RELAY
1210
9211
9214
STAND BY TRANSFORMER
5203
00-11-21
3103 303 3446.7

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

Power 2001, Mainsboard Layout stage .7 2000-11-28

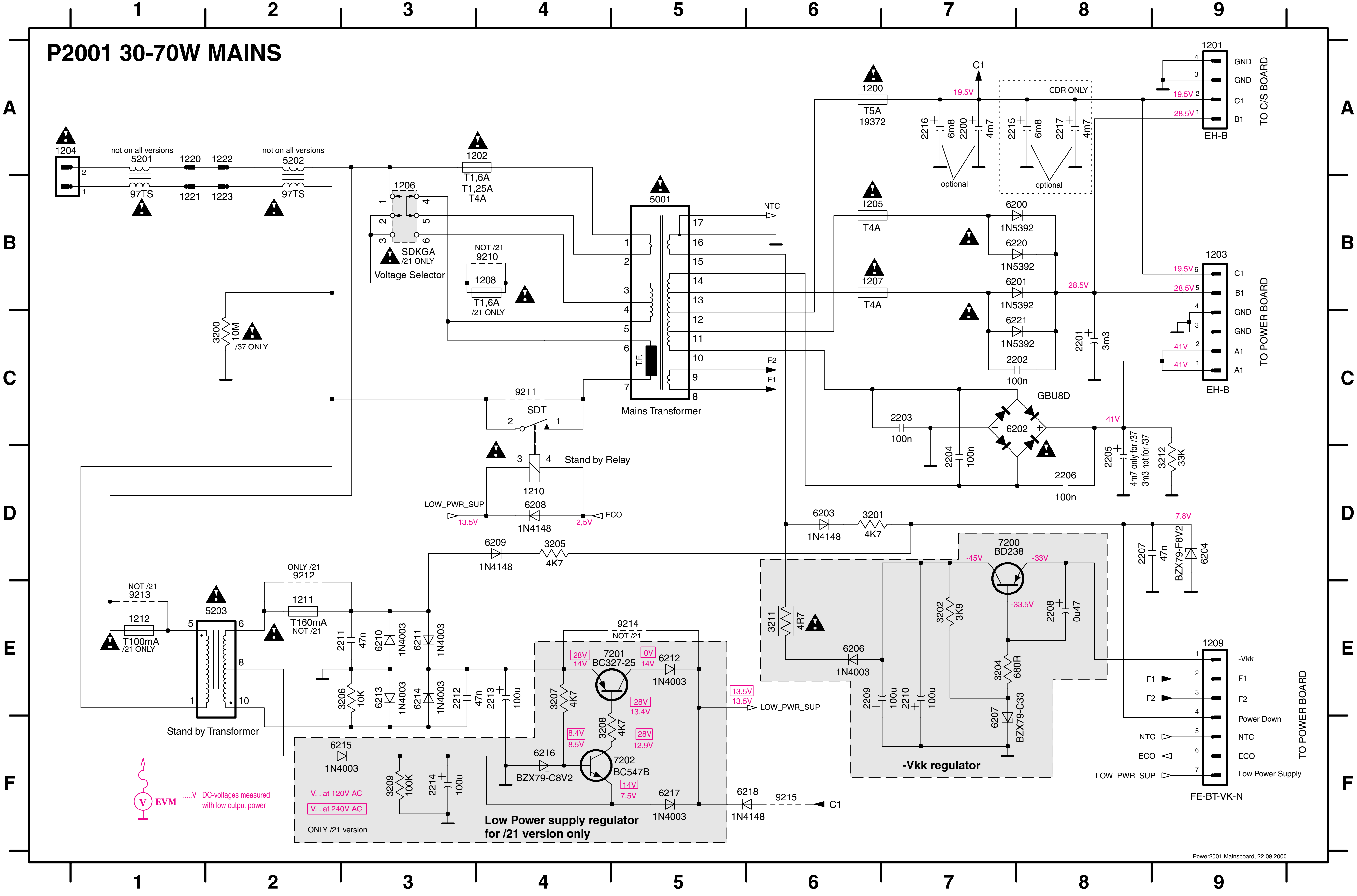
1200	B5	6213	B5
1201	B4	6214	B5
1202	C1	6215	D5
1203	A5	6216	C5
1205	B3	6217	C5
1206	C1	6218	C5
1207	C3	6220	B3
1208	D1	6221	B3
1209	C5	7200	A2
1210	C5	7201	D5
1211	D5	7202	C5
1212	D4	7203	A3
1222	B2	9206	B2
1223	B1	9208	B1
2200	B5	9210	D1
2201	A4	9211	D4
2202	B3	9212	D5
2203	B4	9213	D4
2204	B4	9214	C5
2205	B3	9215	B5
2206	A4	9216	B4
2207	B2	9217	B3
2208	B3	9218	C4
2209	B2	9219	C1
2210	B2	9220	C3
2211	D5	9221	D3
2212	C5	9222	D3
2213	D5	9223	C4
2214	D5	9224	B4
2215	A5	9225	B4
2216	B5	9226	D4
2217	A5	9227	B4
2250	A3	9228	D3
3200	B2	9229	C5
3201	B2	9230	C3
3202	B3	9231	D3
3204	A3	9232	D2
3205	B4	9233	D3
3206	B5	9234	D2
3207	C5	9235	C3
3208	C5	9236	C3
3209	D5	9237	C3
3211	B3	9238	C3
3212	A4	9239	C3
5001	C2	9240	C2
5202	B1	9241	C2
5203	D5	9242	B5
6200	B3	9243	A4
6201	B3	9244	A5
6202	B4	9245	C2
6203	B2	9246	A2
6204	B2	9247	A2
6206	B3	9248	A3
6207	A2		
6208	C5		
6209	C5		
6210	C5		
6211	B5		
6212	C5		

Mains Socket


9251
5220
9250
1221
1220
1204
Mains socket

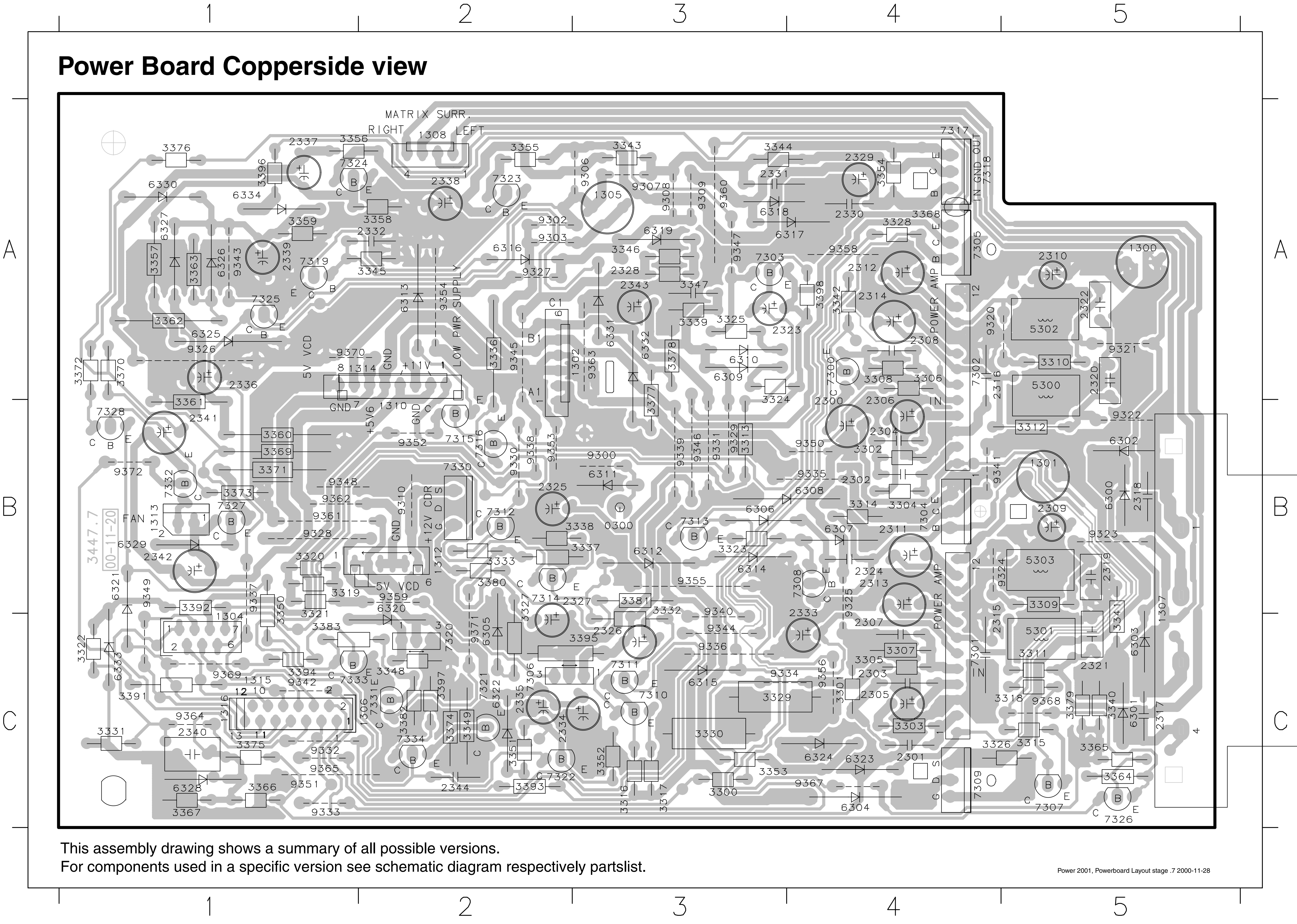
1200	A6
1201	A9
1202	A4
1203	B9
1205	B6
1206	B3
1207	B6
1208	B4
1209	E9
1210	D4
1211	E2
1212	E1
1222	A2
1223	B2
2200	A7
2201	C8
2202	C8
2203	C7
2204	D7
2205	D8
2206	D8
2207	D8
2208	E8
2209	E6
2210	E7
2211	E3
2212	E3
2213	E4
2214	F3
2215	A7
2216	A7
2217	A8
3200	C2
3201	D6
3202	E7
3204	E7
3205	E4
3206	E3
3207	E4
3208	F4
3209	F3
3211	E6
3212	D9
5001	C5
5202	A2
5203	E1
6200	B8
6201	B8
6202	C8
6203	D6
6204	D9
6206	E6
6207	F7
6208	D4
6209	E4
6210	E3
6211	E3
6212	E5
6213	E3
6214	E3
6215	F3
6216	F4
6217	F5
6218	F6
6220	B8
6221	C8
7200	D7
7201	E4
7202	F5
9206	A2
9208	B2
9210	B4
9211	C4
9212	D2
9213	E1
9214	E5
9215	F6

P2001 30-70W MAINS


1 2 3 4 5 6 7 8 9
A B C D E F
1204
not on all versions
5201
97TS
1220
1221
1222
1223
5202
97TS
1202
T1,6A
T1,25A
T4A
1206
SDKGA
/21 ONLY
Voltage Selector
NOT /21
9210
1208
T1,6A
/21 ONLY
3200
10M
/37 ONLY
5001
T.F.
Mains Transformer
NTC
F2
F1
9211
SDT
Stand by Relay
1210
LOW_PWR_SUP
13.5V
6208
1N4148
2,5V
ECO
1200
T5A
19372
C1
19.5V
2216
6m8
2200
4m7
optional
CDR ONLY
2215
6m8
2217
4m7
optional
1201
GND
GND
C1
B1
19.5V
28.5V
EH-B
TO C/S BOARD
1205
T4A
1207
T4A
6200
1N5392
6220
1N5392
6201
1N5392
6221
1N5392
2202
100n
28.5V
2201
3m3
1203
19.5V
28.5V
41V
41V
C1
B1
GND
GND
A1
A1
EH-B
TO POWER BOARD
GBU8D
6202
2203
100n
2204
100n
2206
100n
41V
2205
4m7 only for /37
3m3 not for /37
3212
33K
6203
1N4148
3201
4K7
7.8V
2207
47n
BZX79-F8V2
6204
6209
1N4148
3205
4K7
7200
BD238
-45V
-33V
-33.5V
3202
3K9
2208
0u47
3211
4R7
6206
1N4003
3204
680R
6207
BZX79-C33
2209
100u
2210
100u
-Vkk regulator
1209
-Vkk
F1
F2
Power Down
NTC
ECO
Low Power Supply
F1
F2
NTC
ECO
LOW_PWR_SUP
FE-BT-VK-N
TO POWER BOARD
NOT /21
9213
1212
T100mA
/21 ONLY
5203
Stand by Transformer
ONLY /21
9212
1211
T160mA
NOT /21
2211
47n
6210
1N4003
6211
1N4003
3206
10K
6213
1N4003
6214
1N4003
2212
47n
2213
100u
9214
NOT /21
7201
BC327-25
28V
14V
0V
14V
6212
1N4003
3207
4K7
3208
4K7
28V
13.4V
8.4V
8.5V
28V
12.9V
13.5V
13.5V
LOW_PWR_SUP
6215
1N4003
3209
100K
2214
100u
6216
BZX79-C8V2
7202
BC547B
14V
7.5V
6217
1N4003
6218
1N4148
9215
C1
Low Power supply regulator
for /21 version only
ONLY /21 version
V... at 120V AC
V... at 240V AC
V EVM
.....V DC-voltages measured
with low output power
Power2001 Mainsboard, 22 09 2000

0300 B3
1300 A5
1301 B5
1302 A3
1304 C1
1305 A3
1306 C2
1307 B5
1308 A2
1310 A2
1312 B2
1313 B1
1314 A2
1315 C1
1316 C1
2300 B4
2301 C4
2302 B4
2303 C4
2304 B4
2305 C4
2306 A4
2307 C4
2308 A4
2309 B5
2310 A5
2311 B4
2312 A4
2313 B4
2314 A4
2315 C4
2316 A4
2317 C5
2318 B5
2319 B5
2320 A5
2321 C5
2322 A5
2323 A3
2324 B4
2325 B2
2326 C3
2327 B3
2328 A3
2329 A4
2330 A4
2331 A3
2332 A2
2333 B4
2334 C3
2335 C2
2336 A1
2337 A1
2338 A2
2339 A1
2340 C1
2341 B1
2342 B1
2343 A3
2344 C2
3300 C3
3301 C4
3302 B4
3303 C4
3304 B4
3305 C4
3306 A4
3307 C4
3308 A4
3309 B5
3310 A5
3311 C5
3312 B5
3313 B3
3314 B4
3315 C5
3316 C3
3317 C3
3318 C5
3319 B1
3320 B1
3321 B1
3322 C1
3323 B3
3324 A3
3325 A3
3326 C5
3327 B2
3328 A4
3329 C3
3330 C3
3331 C1
3332 B3
3333 B2
3336 A2
3337 B3
3338 B3
3339 A3
3340 C5
3341 B5
3342 A4
3343 A3
3344 A3
3345 A2
3346 A3
3347 A3
3348 C2
3349 C2
3350 B1
3351 C2
3352 C3
3353 C3
3354 A4
3355 A2
3356 A1
3357 A1
3358 A2
3359 A1
3360 B1
3361 A1
3362 A1
3363 A1
3364 C5
3365 C5
3366 C1
3367 C1
3368 A4
3369 B1
3370 A1
3371 B1
3372 A1
3373 B1
3374 C2
3375 C1
3376 A1
3377 B3
3378 A3
3379 C5
3380 B2
3381 B3
3382 C2
3383 C1
3391 C1
3392 B1
3393 C2
3394 C1
3395 C2
3396 A1
3397 C2
3398 A4
5300 A5
5301 B5
5302 A5
5303 B5
6300 B5
6301 C5
6302 B5
6303 C5
6304 C4
6305 C2
6306 B3
6307 B4
6308 B3
6309 A3
6310 A4
6311 B3
6312 B3
6313 A2
6314 B3
6315 C3
6316 A2
6317 A4
6318 A3
6319 A3
6320 B2
6321 B1
6322 C2
6323 C4
6324 C4
6325 A1
6326 A1
6327 A1
6328 C1
6329 B1
6330 A1
6331 A3
6332 A3
6333 C1
6334 A1
7300 A4
7301 C4
7302 A4
7303 A3
7304 B4
7305 A4
7306 C2
7307 C5
7308 B4
7309 C4
7310 C3
7311 C3
7312 B2
7313 B3
7314 B3
7315 B2
7316 B2
7317 A4
7318 A4
7319 A1
7320 C2
7321 C2
7322 C2
7323 A2
7324 A1
7325 A1
7326 C5
7327 B1
7328 B1
7330 B2
7331 C2
7332 B1
7333 C1
7334 C2
9300 B3
9302 A2
9303 A2
9306 A3
9307 A3
9308 A3
9309 A3
9310 B2
9320 A4
9321 A5
9322 B5
9323 B5
9324 B4
9325 B4
9326 A1
9327 A2
9328 B1
9329 B3
9330 B2
9331 B3
9332 C1
9333 C1
9334 C3
9335 B4
9336 C3
9337 B1
9338 B2
9339 B3
9340 B3
9341 B4
9342 C1
9343 A1
9344 C3
9345 A2
9346 B3
9347 A3
9348 B1
9349 C1
9350 B4
9351 C1
9352 B2
9353 B2
9354 A2
9355 B3
9356 C4
9358 A4
9359 B2
9360 A3
9361 B1
9362 B1
9363 A3
9364 C1
9365 C1
9367 C4
9368 C5
9369 C1
9370 A1
9371 C2
9372 B1

Power Board Copperside view



This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

Power 2001, Powerboard Layout stage .7 2000-11-28

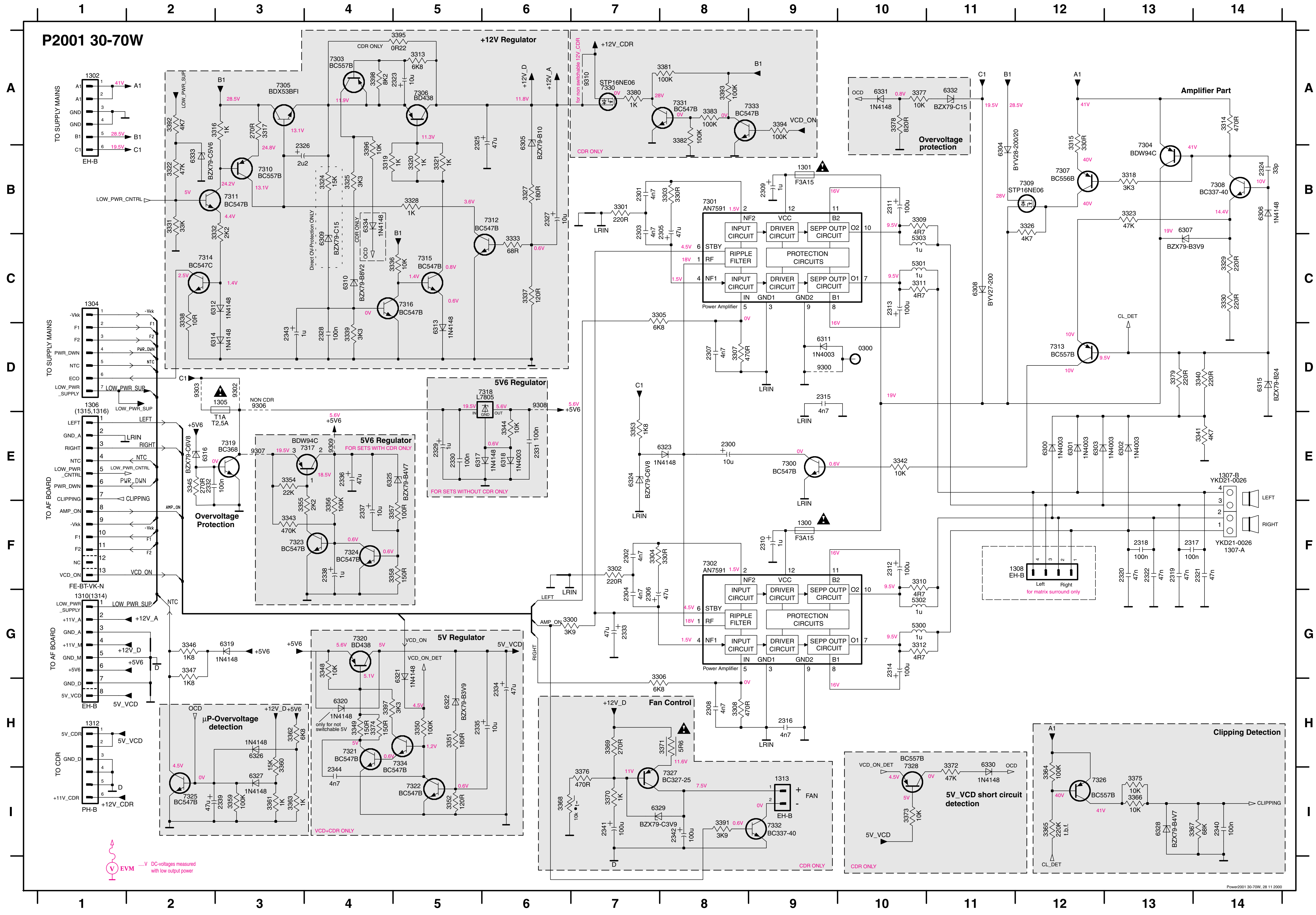
0300	D10	1307-a	F14	1315	D1	2305	B8	2312	F10	2319	F13	2326	B3	2333	G7
1300	F9	1307-b	E14	1316	D1	2306	G7	2313	C10	2320	F13	2327	B6	2334	H6
1301	B9	1308	F12	2300	E8	2307	D8	2314	G10	2321	F14	2328	D4	2335	H5
1302	A1	1310	G1	2301	B7	2308	H8	2315	D9	2322	F13	2329	E5	2336	E4
1304	C1	1312	H1	2302	F7	2309	B9	2316	H9	2323	A4	2330	E5	2337	F4
1305	D3	1313	I9	2303	B7	2310	F9	2317	F13	2324	B14	2331	E6	2338	F4
1306	E1	1314	G1	2304	G7	2311	B10	2318	F13	2325	A5	2332	F5	2339	I2

2340	I14	3303	B8	3310	F10	3317	A3	3324	B4	3331	B2	3340	D14	3347	G2
2341	I7	3304	F7	3311	C10	3318	B13	3325	B4	3332	B3	3341	E14	3348	G4
2342	I8	3305	C7	3312	G10	3319	B4	3326	B12	3333	C6	3342	E10	3349	H4
2343	D3	3306	H7	3313	A5	3320	B5	3327	B6	3336	C5	3343	F3	3350	H5
3300	G6	3307	D8	3314	A14	3321	B5	3328	B3	3337	C6	3344	E6	3351	H5
3301	B7	3308	H8	3315	A12	3322	B2	3329	C14	3338	C2	3345	F5	3352	I5
3302	F7	3309	B10	3316	A3	3323	B13	3330	C14	3339	D4	3346	G2	3353	E7

3354	E3	3361	I3	3368	I6	3375	I13	3382	A8	6300	E12	6307	B13	6314	D2
3355	F3	3362	H3	3369	H7	3376	I7	3383	A8	6301	E12	6308	C11	6315	D14
3356	F4	3363	I3	3370	I7	3377	A10	3391	I8	6302	E13	6309	C4	6316	F5
3357	F5	3364	I12	3371	H8	3378	A10	5300	G10	6303	E12	6310	C4	6317	E6
3358	F5	3365	I12	3372	I11	3379	D13	5301	C10	6304	B11	6311	D9	6318	E6
3359	I3	3366	I13	3373	I10	3380	A7	5302	G10	6305	A6	6312	C2	6319	G3
3360	H3	3367	I14	3374	H4	3381	A8	5303	C10	6306	B14	6313	D5	6320	H4

6321	H5	6328	I13	7302	F8	7309	B12	7316	C5	7323	F3	7331	A8	9308	D4
6322	H5	6329	I7	7303	A4	7310	B3	7317	E3	7324	F4	7332	I9	9309	D4
6323	E8	6330	H11	7304	A13	7311	B3	7318	D6	7325	I2	9300	D9	9310	A5
6324	E7	6331	A10	7305	A3	7312	B6	7319	F6	7326	I12	9302	D3		
6325	E5	6332	A11	7306	A5	7313	D12	7320	G4	7327	I8	9303	D2		
6326	H2	7300	E9	7307	B12	7314	C2	7321	H4	7328	H10	9306	D3		
6327	H3	7301	B8	7308	B14	7315	C5	7322	I5	7330	A7	9307	E3		

P2001 30-70W


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
+12V Regulator
TO SUPPLY MAINS
1302
EH-B
41V
A1
28.5V
B1
19.5V
C1
GND
LOW_PWR_SUP
LOW_PWR_CNTRL
7305
BDX53BFI
7303
BC557B
7306
BD438
7310
BC557B
7311
BC547B
7312
BC547B
7314
BC547C
7315
BC547B
7316
BC547B
CDR ONLY
3395
0R22
+12V_D
+12V_A
Direct OV-Protection ONLY
+12V_CDR
for non switchable 12V_CDR
STP16NE06
7330
7331
BC547B
7333
BC547B
VCD_ON
CDR ONLY
Overvoltage protection
6331
1N4148
6332
BZX79-C15
Amplifier Part
7304
BDW94C
7307
BC556B
7308
BC337-40
7309
STP16NE06
7313
BC557B
CL_DET
1301
F3A15
7301
AN7591
NF2
VCC
B2
INPUT CIRCUIT
DRIVER CIRCUIT
SEPP OUTP CIRCUIT
O2
STBY
RIPPLE FILTER
PROTECTION CIRCUITS
RF
NF1
O1
IN
GND1
GND2
B1
Power Amplifier
LRIN
6311
1N4003
0300
9300
1304
-Vkk
F1
F2
PWR_DWN
NTC
ECO
LOW_PWR_SUPPLY
1306
(1315,1316)
LEFT
GND_A
RIGHT
CLIPPING
AMP_ON
NC
VCD_ON
FE-BT-VK-N
TO AF BOARD
1305
T1A
T2,5A
NON CDR
9306
Overvoltage Protection
7319
BC368
5V6 Regulator
FOR SETS WITH CDR ONLY
BDW94C
7317
7323
BC547B
7324
BC547B
+5V6
5V6 Regulator
7318
L7805
FOR SETS WITHOUT CDR ONLY
9308
7300
BC547B
1307-B
YKD21-0026
LEFT
RIGHT
1307-A
1308
EH-B
Left
Right
for matrix surround only
7302
AN7591
1300
F3A15
1310(1314)
+11V_A
GND_A
+11V_M
GND_M
+5V6
GND_D
5V_VCD
EH-B
1312
5V_CDR
GND_D
+11V_CDR
TO CDR
PH-B
+12V_CDR
µP-Overvoltage detection
OCD
7325
BC547B
5V Regulator
7320
BD438
VCD_ON_DET
7321
BC547B
7334
BC547B
7322
BC547B
only for not switchable 5V
VCD+CDR ONLY
Fan Control
7327
BC327-25
7332
BC337-40
1313
FAN
EH-B
5V_VCD short circuit detection
7328
BC557B
CDR ONLY
Clipping Detection
7326
BC557B
CLIPPING
CL_DET
EVM
V DC-voltages measured with low output power
Power2001 30-70W, 28 11 2000

MISCELLANEOUS

1200 ⚠	2422 086 10963	FUSE RAD 5A 250V IEC	
1202 ⚠	4822 071 51252	FUSE 1.25A	for sets without 5203
1202 ⚠	4822 071 51602	FUSE 1,6A	for sets with 5203
1202 ⚠	4822 253 10126	FUSE T4A	
1204 ⚠	2422 030 00328	MAINS SOCKET /37	
1204 ⚠	4822 265 31015	MAINS SOCKET /21, /22	
1205 ⚠	2422 086 10786	FUSE RAD 4A 250V IEC	
1206 ⚠	2422 129 16478	VOLTAGE SELECTOR	
1207 ⚠	2422 086 10786	FUSE RAD 4A 250V IEC	
1208 ⚠	4822 071 51252	FUSE 1.25A	for sets without 5203
1208 ⚠	4822 071 51602	FUSE 1,6A	for sets with 5203
1209	4822 267 10953	FLEX FOIL CONNECTOR 7P	
1210 ⚠	2422 132 07402	RELAY 1P 12V	
1211 ⚠	2422 086 10771	FUSE RAD 160mA 250V IEC	
1212 ⚠	4822 071 51001	FUSE 100mA	
1300 ⚠	4822 252 11225	FUSE F3.15A IEC 250V	
1301 ⚠	4822 252 11225	FUSE F3.15A IEC 250V	
1304	4822 267 10953	FLEX FOIL CONNECTOR 7P	
1305 ⚠	4822 071 51002	FUSE T1A	for sets without 5203
1305 ⚠	4822 071 52502	FUSE T 2,5A	for sets with 5203
1306	4822 267 10738	FFC-CONNECTOR 13P	
1307	4822 267 31176	SPEAKER TERMINAL	
5203 ⚠	3103 308 30600	STANDBY TRANSFORMER /21	
5203 ⚠	3103 308 30610	STANDBY TRANSFORMER /22	
5203 ⚠	3103 308 30800	STANDBY TRANSFORMER /37	
8010	3139 110 34600	FLEX FOIL CABLE 7Pin, 280mm	
	4822 492 11735	SPRING FIXATION TRANSISTOR	

CAPACITORS

2200	4822 124 12012	4700µF	20%	25V	
2201	4822 124 42367	3300µF	20%	35V	
2202	5322 121 42386	100nF	5%	63V	
2203	5322 121 42386	100nF	5%	63V	
2204	5322 121 42386	100nF	5%	63V	
2205	4822 124 80415	4700µF	20%	50V	only for /37
2205	8203 303 85640	3300µF	20%	50V	not for /37
2206	5322 121 42386	100nF	5%	63V	
2207	4822 122 33449	47nF	30%	50V	
2208	5322 124 41948	0,47µF	20%	50V	
2209	2020 012 93547	100µF	20%	63V	
2211	4822 121 43526	47nF	5%	100V	
2212	4822 121 43526	47nF	5%	100V	
2213	4822 124 40255	100µF	20%	50V	
2214	4822 124 40207	100µF	20%	25V	
2217	4822 124 12012	4700µF	20%	25V	
2300	4822 124 40248	10µF	20%	63V	
2301	4822 126 11714	4,7nF	20%	16V	
2302	4822 126 11714	4,7nF	20%	16V	
2303	4822 126 11714	4,7nF	20%	16V	
2304	4822 126 11714	4,7nF	20%	16V	
2305	4822 124 40433	47µF	20%	25V	
2306	4822 124 40433	47µF	20%	25V	
2307	4822 126 11714	4,7nF	20%	16V	
2308	4822 126 11714	4,7nF	20%	16V	
2309	4822 124 21913	1µF	20%	63V	
2310	4822 124 21913	1µF	20%	63V	
2311	4822 124 40207	100µF	20%	25V	
2312	4822 124 40207	100µF	20%	25V	
2313	4822 124 40207	100µF	20%	25V	
2314	4822 124 40207	100µF	20%	25V	
2315	4822 126 11714	4,7nF	20%	16V	
2316	4822 126 11714	4,7nF	20%	16V	
2317	4822 126 12882	100nF	20%	50V	
2318	4822 126 12882	100nF	20%	50V	
2319	4822 121 43526	47nF	5%	100V	
2320	4822 121 43526	47nF	5%	100V	
2321	4822 121 43526	47nF	5%	100V	
2322	4822 121 43526	47nF	5%	100V	
2323	4822 124 40248	10µF	20%	63V	
2324	4822 122 33069	33pF	5%	50V	
2325	4822 124 40433	47µF	20%	25V	
2326	4822 124 22652	2,2µF	20%	50V	
2327	4822 124 40248	10µF	20%	63V	
2328	4822 126 12882	100nF	20%	50V	
2329	4822 124 21913	1µF	20%	63V	
2330	4822 126 12882	100nF	20%	50V	
2331	4822 126 12882	100nF	20%	50V	
2332	4822 126 12882	100nF	20%	50V	
2333	4822 124 40433	47µF	20%	25V	
2334	4822 124 40433	47µF	20%	25V	
2335	4822 124 40248	10µF	20%	63V	
2336	4822 124 40433	47µF	20%	25V	
2337	4822 124 40248	10µF	20%	63V	
2338	4822 124 21913	1µF	20%	63V	
2339	4822 124 40433	47µF	20%	25V	
2341	4822 124 23052	100µF	20%	16V	
2342	4822 124 23052	100µF	20%	16V	
2343	4822 124 21913	1µF	20%	63V	

RESISTORS

3200	4822 053 21106	10MΩ	5%	0,5W
3201	4822 116 52283	4,7kΩ	5%	0,5W
3202	4822 116 52276	3,9kΩ	5%	0,5W
3204	4822 116 52228	680Ω	5%	0,5W
3205	4822 116 52283	4,7kΩ	5%	0,5W
3206	4822 050 21003	10kΩ	2%	0,25W
3207	4822 116 52283	4,7kΩ	5%	0,5W
3208	4822 116 52283	4,7kΩ	5%	0,5W
3209	4822 116 52234	100kΩ	5%	0,5W
3211	4822 052 10478	4,7Ω	5%	NFR
3212	4822 050 23303	33kΩ	1%	0,6W
3300	4822 116 52276	3,9kΩ	5%	0,5W
3301	4822 116 83872	220Ω	5%	0,5W
3302	4822 116 83872	220Ω	5%	0,5W
3303	4822 116 52219	330Ω	5%	0,5W
3304	4822 116 52219	330Ω	5%	0,5W
3305	4822 116 83961	6,8kΩ	5%	0,16W
3306	4822 116 83961	6,8kΩ	5%	0,16W
3307	4822 116 83883	470Ω	5%	0,16W
3308	4822 116 83883	470Ω	5%	0,16W
3309	4822 050 24708	4,7Ω	1%	0,6W
3310	4822 050 24708	4,7Ω	1%	0,6W
3311	4822 050 24708	4,7Ω	1%	0,6W
3312	4822 050 24708	4,7Ω	1%	0,6W
3313	4822 116 83961	6,8kΩ	5%	0,16W
3314	4822 116 83883	470Ω	5%	0,16W
3315	4822 116 52219	330Ω	5%	0,5W
3316	4822 050 11002	1kΩ	5%	0,2W
3317	4822 116 83876	270Ω	5%	0.16W
3318	4822 116 52269	3,3kΩ	5%	0,5W
3319	4822 050 11002	1kΩ	5%	0,2W
3320	4822 050 11002	1kΩ	5%	0,2W
3321	4822 050 11002	1kΩ	5%	0,2W
3322	4822 116 83884	47kΩ	5%	0,16W
3323	4822 116 83884	47kΩ	5%	0,16W
3324	4822 116 52244	15kΩ	5%	0,5W
3325	4822 116 52269	3,3kΩ	5%	0,5W
3326	4822 116 52283	4,7kΩ	5%	0,5W
3327	4822 116 52213	180Ω	5%	0,5W
3328	4822 050 11002	1kΩ	5%	0,2W
3329	4822 053 11221	220Ω	5%	2W
3330	4822 053 11221	220Ω	5%	2W
3331	4822 050 23303	33kΩ	1%	0,6W
3332	4822 116 52256	2,2kΩ	5%	0,16W
3333	4822 116 52199	68Ω	5%	0,16W
3336	4822 050 21003	10kΩ	2%	0,25W
3337	4822 116 52206	120Ω	5%	0,5W
3338	4822 116 52176	10Ω	5%	0,5W
3339	4822 116 52269	3,3kΩ	5%	0,5W
3340	4822 116 83872	220Ω	5%	0,5W
3341	4822 116 52283	4,7kΩ	5%	0,5W
3342	4822 050 21003	10kΩ	2%	0,25W
3343	4822 116 52285	470kΩ	5%	0,5W
3344	4822 050 21003	10kΩ	2%	0,25W
3345	4822 116 83876	270Ω	5%	0.16W
3346	4822 116 52249	1,8kΩ	5%	0,16W
3347	4822 116 52249	1,8kΩ	5%	0,16W
3348	4822 050 21003	10kΩ	2%	0,25W
3349	4822 116 52213	180Ω	5%	0,5W
3350	4822 050 21003	10kΩ	2%	0,25W
3351	4822 116 83868	150Ω	5%	0,5W
3352	4822 116 52206	120Ω	5%	0,5W
3353	4822 116 52249	1,8kΩ	5%	0,16W
3354	4822 116 52257	22kΩ	5%	0,5W
3355	4822 116 52256	2,2kΩ	5%	0,16W
3356	4822 116 52234	100kΩ	5%	0,5W
3357	4822 116 52175	100Ω	5%	0,5W
3358	4822 116 83868	150Ω	5%	0,5W
3359	4822 116 52234	100kΩ	5%	0,5W
3360	4822 116 52244	15kΩ	5%	0,5W
3361	4822 050 11002	1kΩ	5%	0,2W
3362	4822 116 83961	6,8kΩ	5%	0,16W
3363	4822 050 11002	1kΩ	5%	0,2W
3368	2322 640 63103	10kΩ	NTC	
3369	4822 116 83876	270Ω	5%	0.16W
3370	4822 050 11002	1kΩ	5%	0,2W
3371	4822 052 10568	5,6Ω	5%	0,33W
3372	4822 116 83884	47kΩ	5%	0,16W
3373	4822 050 21003	10kΩ	2%	0,25W
3374	4822 116 52213	180Ω	5%	0,5W
3376	4822 116 83883	470Ω	5%	0,16W
3377	4822 050 21003	10kΩ	2%	0,25W
3378	4822 116 52231	820Ω	5%	0,5W
3379	4822 116 83872	220Ω	5%	0,5W
3380	4822 050 11002	1kΩ	5%	0,2W
3381	4822 116 52234	100kΩ	5%	0,5W
3382	4822 116 52234	100kΩ	5%	0,5W
3383	4822 116 52234	100kΩ	5%	0,5W
3391	4822 116 52276	3,9kΩ	5%	0,5W
3392	4822 116 52283	4,7kΩ	5%	0,5W

COILS

5202	4822 157 11832	400µH
5220	4822 157 11832	400µH
5300	4822 157 62255	COIL 18,5 TURNS
5301	4822 157 62255	COIL 18,5 TURNS
5302	4822 157 62255	COIL 18,5 TURNS
5303	4822 157 62255	COIL 18,5 TURNS

DIODES

6200 ⚠	4822 130 31878	1N4003G
6201 ⚠	4822 130 31878	1N4003G
6202	4822 130 11139	GBU8D
6203	4822 130 30621	1N4148
6204	3198 010 58280	BZX79-B8V2
6206	4822 130 31878	1N4003G
6207	4822 130 34142	BZX79-B33
6208	4822 130 30621	1N4148
6209	4822 130 30621	1N4148
6210	4822 130 31878	1N4003G
6211	4822 130 31878	1N4003G
6212	4822 130 31878	1N4003G
6213	4822 130 31878	1N4003G
6214	4822 130 31878	1N4003G
6215	4822 130 31878	1N4003G
6216	4822 130 34382	BZX79-B8V2
6217	4822 130 31878	1N4003G
6218	4822 130 30621	1N4148
6220 ⚠	4822 130 31878	1N4003G
6221 ⚠	4822 130 31878	1N4003G
6300	4822 130 31878	1N4003G
6301	4822 130 31878	1N4003G
6302	4822 130 31878	1N4003G
6303	4822 130 31878	1N4003G
6304	9340 550 66112	BYV28-200/24
6305	4822 130 61219	BZX79-C10
6306	4822 130 30621	1N4148
6307	3198 010 53980	BZX79-B3V9
6308	5322 130 31938	BYV27-200
6309	4822 130 34281	BZX79-C15
6310	3198 010 58280	BZX79-B8V2
6311	4822 130 31878	1N4003G
6312	4822 130 30621	1N4148
6313	4822 130 30621	1N4148
6314	4822 130 30621	1N4148
6315	4822 130 34398	BZX79-C24
6316	4822 130 34278	BZX79-C6V8
6317	4822 130 30621	1N4148
6318	4822 130 31878	1N4003G
6319	4822 130 30621	1N4148
6321	4822 130 30621	1N4148
6322	3198 010 53980	BZX79-B3V9
6323	4822 130 30621	1N4148
6324	4822 130 34278	BZX79-C6V8
6325	4822 130 34174	BZX79-B4V7
6326	4822 130 30621	1N4148
6327	4822 130 30621	1N4148
6329	4822 130 31981	BZX79-B3V9
6330	4822 130 30621	1N4148
6331	4822 130 30621	1N4148
6332	4822 130 34281	BZX79-C15
6333	4822 130 34173	BZX79-B5V6

TRANSISTORS

7200	4822 130 40917	BD238
7201	4822 130 41246	BC327-25
7202	4822 130 40959	BC547B
7300	4822 130 40959	BC547B
7303	4822 130 44568	BC557B
7304	4822 130 10847	BDW94C
7305	9322 139 23687	BDX53BFP
7306	4822 130 40995	BD438
7307	4822 130 41691	BC556B
7308	4822 130 40855	BC337-40
7309	4822 130 11336	STP16NE06FP
7310	4822 130 44568	BC557B
7311	4822 130 40959	BC547B
7312	4822 130 40959	BC547B
7313	4822 130 44568	BC557B
7314	4822 130 44503	BC547C
7315	4822 130 40959	BC547B
7316	4822 130 40959	BC547B
7317	4822 130 10847	BDW94C
7319	5322 130 44647	BC368
7320	4822 130 40995	BD438
7321	4822 130 40959	BC547B
7322	4822 130 40959	BC547B
7323	4822 130 40959	BC547B
7324	4822 130 40959	BC547B
7325	4822 130 40959	BC547B
7327	4822 130 41246	BC327-25
7328	4822 130 44568	BC557B
7330	4822 130 11336	STP16NE06FP
7331	4822 130 40959	BC547B
7332	4822 130 40855	BC337-40

INTEGRATED CIRCUITS

7301	9322 161 89682	AN7591, Power amplifier
7302	9322 161 89682	AN7591, Power amplifier
7318	4822 209 31841	L7805CP, Stabilizer 5V

AF9 BOARD

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BRIEF INTRODUCTION OF THE AF9 BOARD

The AF9 Board consists of the following features :

a. TDA7468D IC

TDA7468D IC (7501) which includes functions such as source selection, loudness control, dynamic bass control, treble control, volume control and muting function. Sound features such as ALC, DBB, DSC and IS are controllable via I^{2}C Bus from the microprocessor.

The TDA7468D IC caters for 4 input sources namely TUNER, TAPE, CD and AUX. It also has a Mic mix input. In our application, software will switch the input source to previous source MUTE during STANDBY mode and some other occasions where noise from other input source is undesirable.

Note that the input to the TDA7468D IC must be ac coupled to prevent 'polp' noise.
Input networks are included to provide appropriate attenuation for various sources.

b. SIMPLE MIC MIXING

The AF9 Board has provisions which can be configured to cater for one of the following:
MM : which caters for Mic mixing with additional Mic amplifier board.
NM : non Mic mixing.

c. DOLBY PRO LOGIC (DPL) INTERFACE

The AF9 Board has provisions which can be configured to cater for DPL.

d. LINE OUT

Line out cinch socket for connection to external amplifier.

e. SUB-WOOFER OUT

Sub-woofer out cinch socket for connection to active sub-woofer speaker.

f. INCREDIBLE SURROUND

Incredible surround effect using transistor circuit to create phase shifting and spatial effect.

g. HEADPHONE AMPLIFIER

Headphone amplifier to drive 32 ohm to 1kohm headphone.

h. CD STANDBY CONTROL

CD Standby Control circuit which switches on the supply to CD servo control IC, digital out buffer IC, HF circuit and the laser light pen in CD mode only.

i. ATTENUATION NETWORK

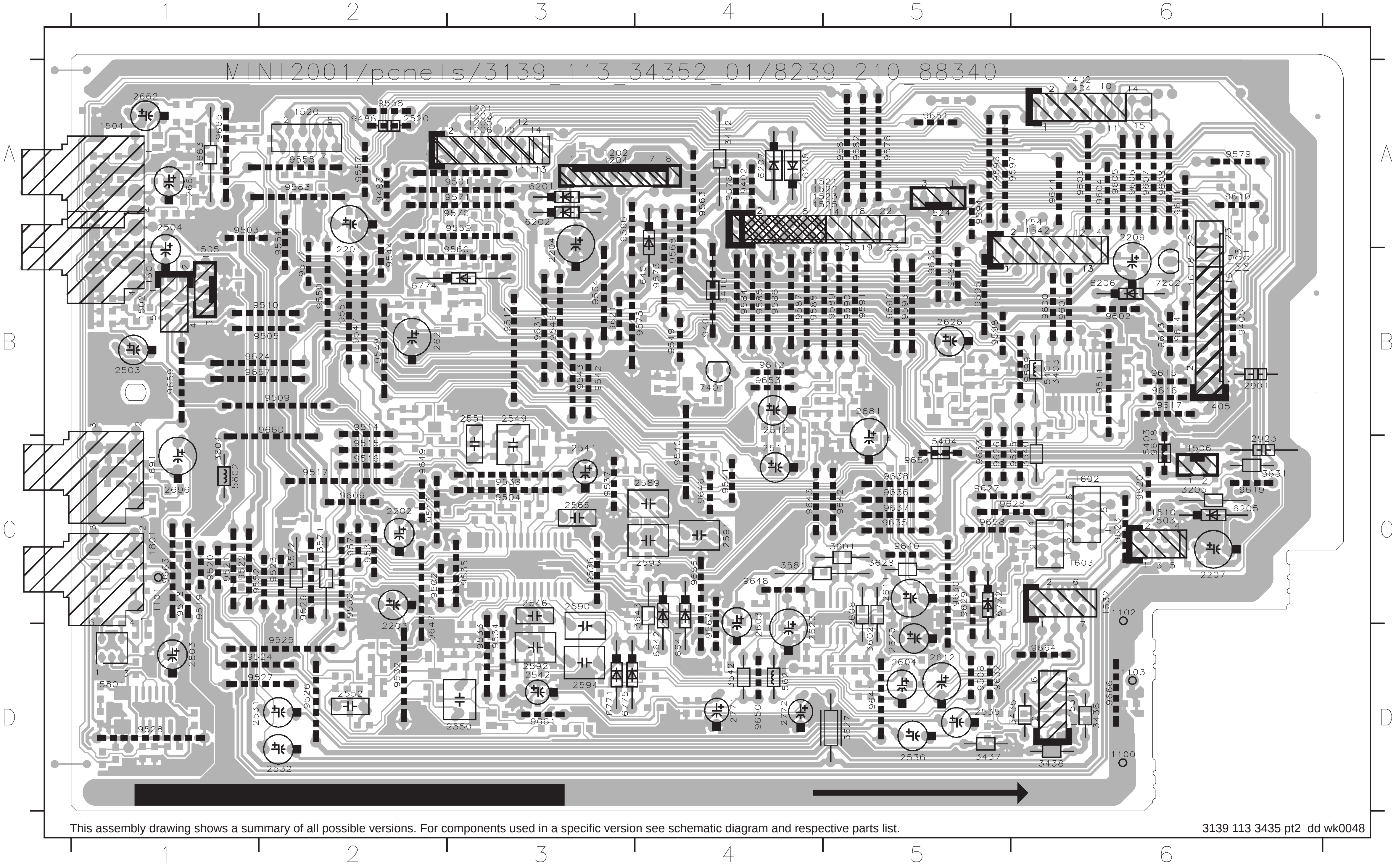
Attenuation network is provided at the output of the AF9 Board for interfacing with power board of different output power.

j. CD DIGITAL OUT

CD Digital out cinch socket for connection to external digital audio decoders.

AF9 BOARD - COMPONENT LAYOUT

1100 D6	1502 B1	1602 C6	2532 D2	2594 D3	2901 B6	3608 C5	6205 C6	9483 A2	9516 C2	9532 D2	9550 B2	9573 B4	9590 B5	9606 A6	9623 C6	9641 D5	9660 B2
1101 C1	1503 C6	1603 C6	2535 D5	2603 D4	2923 C6	3627 D5	6206 B6	9484 B5	9517 C2	9533 D3	9551 B2	9574 C2	9591 B5	9607 A6	9624 B1	9642 C5	9661 D3
1102 C6	1504 A1	1691 C1	2536 D5	2604 D5	3205 C6	3628 C5	6207 A4	9486 A2	9518 C1	9534 D3	9552 C1	9575 B4	9592 B5	9608 A6	9625 C6	9643 C4	9662 B5
1103 D6	1505 B1	1801 C1	2541 C3	2611 C5	3403 B6	3631 C6	6208 A4	9501 A3	9519 C1	9535 C3	9554 A2	9576 A5	9593 B5	9609 C2	9626 C5	9644 A6	9663 C1
1201 A3	1506 C6	2201 B2	2542 D3	2612 D5	3410 B4	3640 C6	6401 B4	9502 C2	9520 C1	9536 C3	9555 A2	9577 B2	9594 A5	9610 A6	9627 C5	9646 C4	9664 D6
1202 A3	1510 C6	2202 C2	2546 C3	2621 B2	3412 A4	3643 C4	6641 D4	9503 A1	9521 C1	9537 C3	9557 A2	9578 A4	9595 B5	9611 A6	9628 C6	9647 D2	9665 A1
1203 A3	1520 A2	2203 D2	2549 B3	2623 D4	3435 D6	3663 A1	6642 D4	9504 C3	9522 C1	9538 C3	9558 A2	9579 A6	9596 A5	9612 B4	9629 C5	9648 C4	9666 D6
1204 A3	1521 A5	2204 B3	2550 D3	2625 D5	3436 D6	3804 C1	6771 D3	9505 B2	9523 C2	9540 C4	9559 A3	9581 A5	9597 A6	9613 B6	9630 C5	9649 C2	
1205 A3	1522 A5	2207 C6	2551 B3	2626 B5	3437 D5	5401 B6	6772 C5	9508 D5	9524 D2	9541 C4	9560 B3	9582 A5	9598 B5	9614 B6	9631 B3	9650 D4	
1206 A3	1523 A5	2209 A6	2552 D2	2661 A1	3438 D6	5403 C6	6774 B2	9509 B2	9525 D2	9542 B3	9563 A4	9583 A2	9599 B6	9615 B6	9632 D5	9651 A5	
1401 B6	1524 A5	2503 B1	2565 C3	2662 A1	3542 D4	5404 C5	6775 D3	9510 B2	9526 D2	9543 B3	9564 B3	9584 B4	9600 B6	9616 B6	9633 C5	9653 B4	
1402 A6	1525 A5	2504 A1	2589 C4	2681 B5	3571 C2	5621 D4	7202 B6	9511 B6	9527 D2	9544 B2	9566 A3	9585 B4	9601 B6	9617 B6	9635 C5	9654 C5	
1403 B6	1531 D6	2511 C4	2590 C3	2696 C1	3572 C2	5801 D1	7401 B4	9512 B3	9528 D1	9546 B3	9567 D4	9586 B4	9602 B6	9618 C6	9636 C5	9656 C4	
1404 A6	1532 C6	2512 B4	2591 C4	2771 D4	3581 C4	5802 C1	9401 B4	9513 C2	9529 C2	9547 B2	9568 B4	9587 B4	9603 A6	9619 C6	9637 C5	9657 B1	
1405 B6	1541 A6	2520 A2	2592 D3	2772 D4	3601 C5	6201 A3	9402 A4	9514 B2	9530 C2	9548 B2	9570 A3	9588 B4	9604 A6	9620 C6	9638 C5	9658 C5	
1501 B1	1542 A6	2531 D1	2593 C4	2803 D1	3602 D5	6202 A3	9405 B6	9515 C2	9531 C2	9549 B4	9571 A3	9589 B5	9605 A6	9621 B3	9640 C5	9659 B1	



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

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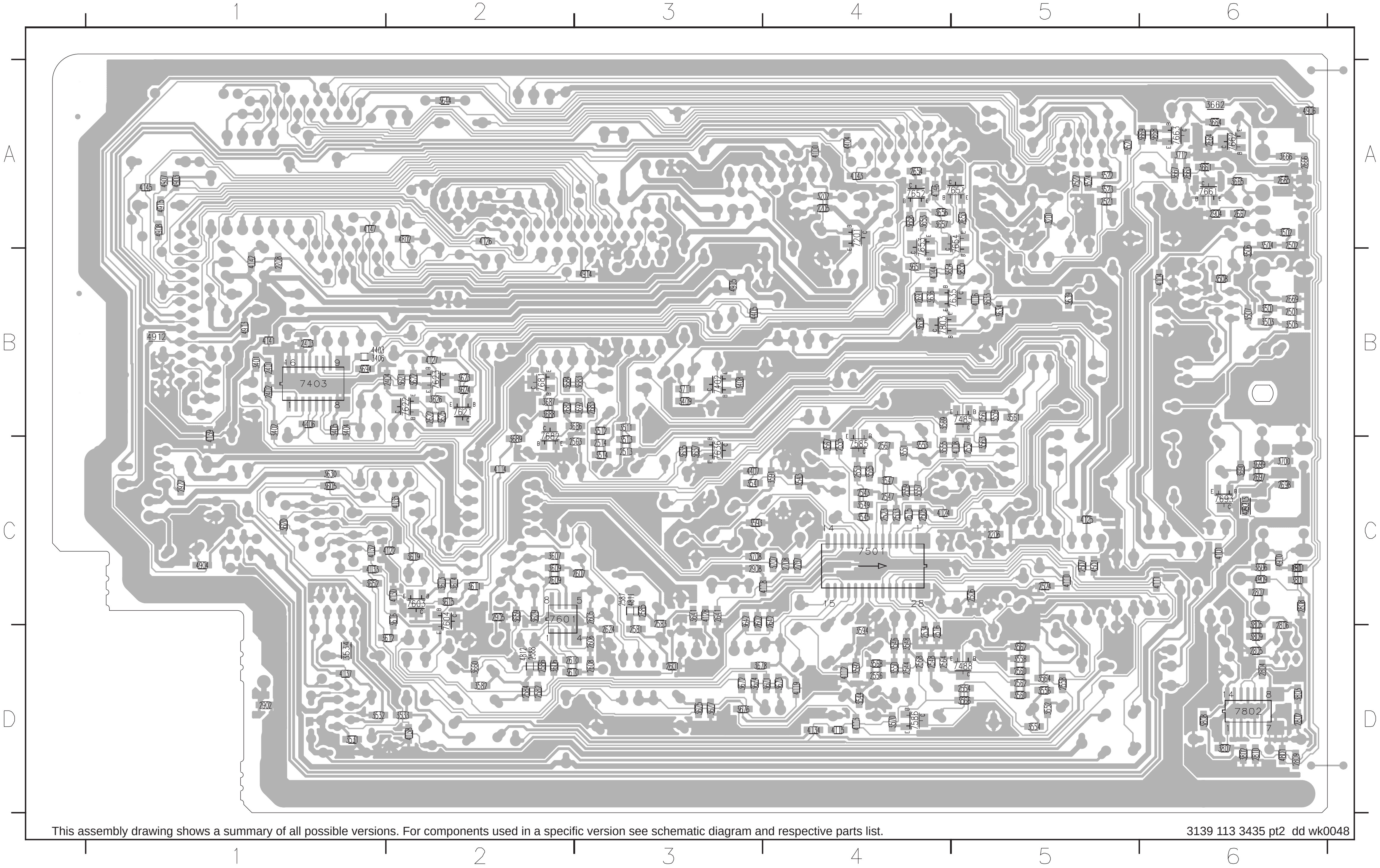
AF9 BOARD - CHIP LAYOUT

2205	A4	2523	C4	2563	C3	2609	C2	2698	C6	3201	A5	3512	B3	3549	C4	3567	C4
2206	C5	2524	C5	2564	D4	2610	D2	2707	C4	3202	A4	3513	C3	3550	D4	3568	D4
2208	B1	2533	C4	2567	C4	2622	B2	2708	C4	3401	B1	3514	C3	3551	C4	3569	B4
2401	B1	2534	D4	2568	D4	2624	D3	2801	C6	3402	B1	3521	A5	3552	D5	3570	D4
2402	B1	2543	C4	2581	D3	2641	C3	2802	D6	3404	B1	3522	A5	3553	C4	3582	D2
2403	B1	2544	D4	2582	D2	2642	C4	2804	D6	3405	B1	3523	A5	3554	D5	3591	C4
2404	B2	2547	C4	2583	C3	2653	A5	2805	D6	3406	B1	3524	A5	3555	C4	3592	D4
2501	B6	2548	D4	2584	D2	2654	A4	2806	D6	3408	B3	3531	D1	3556	D5	3593	C3
2502	A6	2553	C4	2585	C3	2663	A6	2807	C6	3409	B3	3532	D1	3557	C4	3594	D4
2505	C4	2554	D5	2586	D2	2664	A6	2808	C6	3501	B6	3533	D2	3558	D5	3605	C1
2506	C5	2555	C4	2587	C3	2665	A6	2809	D6	3502	A6	3534	D1	3559	B5	3606	D2
2507	C5	2556	D4	2588	D2	2666	A6	2810	D6	3503	B6	3541	C3	3560	D5	3607	C2
2513	C3	2557	C5	2601	D3	2667	A6	2902	D1	3504	A6	3543	C4	3561	B5	3609	C2
2514	C3	2558	D5	2602	C3	2669	B6	2904	A6	3505	B6	3544	D4	3562	D5	3610	D2
2515	C4	2559	C4	2605	C3	2682	B2	2905	C2	3506	B6	3545	C4	3563	C5	3611	C2
2516	D4	2560	D5	2606	D3	2683	B3	2908	C3	3507	B6	3546	D4	3564	D5	3612	D2
2521	A5	2561	B5	2607	C3	2691	B4	2921	C6	3508	B6	3547	C4	3565	C4	3613	C2
2522	A5	2562	D5	2608	D3	2697	C6	2922	C1	3511	B3	3548	D4	3566	D5	3614	C2

3615	C2	3639	B5	3666	A6	3690	C6	4101	C6	4130	C2	4406	B1	4913	B1	7636	C3
3616	C2	3641	C3	3667	A6	3692	B3	4104	B6	4132	C1	4407	C3	4914	B3	7651	A5
3619	C2	3642	C3	3668	A6	3694	B1	4108	C5	4133	C1	4501	C5	4915	A1	7652	A4
3620	C1	3644	A2	3669	A6	3699	C6	4110	C5	4134	D4	4801	D6	7201	A4	7653	A4
3621	B2	3651	B4	3671	D4	3700	C6	4111	C6	4135	C2	4802	A2	7402	B3	7654	A5
3622	B2	3652	C1	3672	D3	3707	C4	4112	D4	4137	D1	4811	C3	7403	B1	7661	A6
3623	B2	3653	A4	3673	D4	3708	C3	4113	D4	4138	D2	4812	D2	7485	B5	7662	A6
3624	B2	3654	B4	3674	D3	3711	B3	4114	C2	4139	B1	4813	C6	7488	D5	7663	A6
3625	B2	3655	B5	3675	D3	3712	A6	4115	D4	4141	B1	4903	A1	7501	C4	7681	B2
3626	B2	3656	A4	3676	D3	3801	C6	4116	B5	4142	B1	4904	C1	7585	C4	7682	B2
3629	C2	3657	A4	3677	D3	3802	D6	4118	C4	4143	A4	4905	B3	7586	D4	7693	C6
3630	C1	3658	A4	3678	D3	3803	D6	4119	D4	4144	B4	4906	A6	7601	C2	7802	D6
3633	B5	3659	C2	3683	B3	3805	C6	4122	C2	4145	A1	4907	A1	7603	C2	7803	B4
3634	B5	3660	D2	3684	B2	3806	C6	4124	C4	4146	A4	4908	A1	7604	C2		
3635	C3	3661	A6	3686	B3	3807	D6	4125	C5	4147	A1	4909	C6	7621	B2		
3636	B4	3662	A6	3687	B2	3808	D6	4126	A2	4403	B1	4910	C6	7622	B2		
3637	C3	3664	A6	3688	B2	3809	D6	4127	B2	4404	A4	4911	C6	7623	B2		
3638	B4	3665	A6	3689	C2	4100	A4	4128	C3	4405	B3	4912	B1	7635	B5		



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

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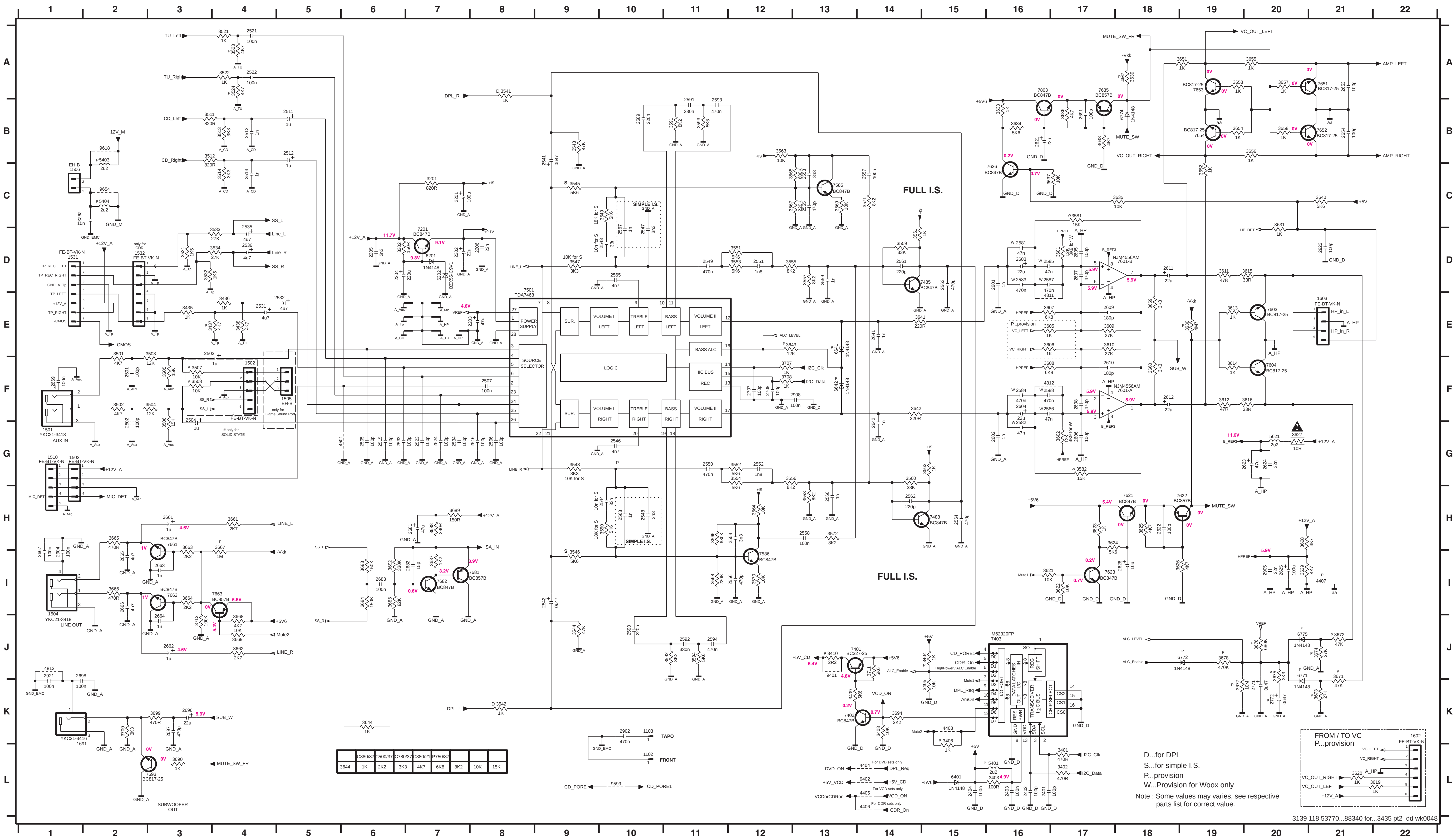
AF9 BOARD - CIRCUIT DIAGRAM (PART 1)

1102 L10
1103 K10
1501 G1
1502 F4
1503 G1
1504 I1
1505 F5
1506 C1
1510 G1
1531 D1
1532 D2
1602 K22
1603 E21
1691 K2
2201 C7
2202 D7
2203 E8
2204 D6
2205 D6
2206 D8
2401 L16
2402 L16
2403 L16
2404 L15
2501 F2
2502 G2
2503 E3
2504 G3
2505 G6
2506 G8
2507 F8
2511 B5
2512 B5
2513 B4
2514 C4
2515 G6
2516 G8
2521 A4
2522 A4
2523 G7
2524 G7
2531 E4
2532 E5
2533 G6
2534 G7
2535 D4
2536 D4
2541 B9
2542 I9
2543 D10
2544 H10
2546 G10
2547 D10
2548 H10
2549 D11
2550 G11
2551 D12
2552 G12
2553 C13
2554 H12
2555 C13
2556 I12
2557 C14
2558 H13
2559 D13
2560 H13
2561 D14
2562 H14
2563 D15
2564 H15
2565 D10
2567 D10
2568 H10
2581 D16
2582 G16
2583 D16
2584 F16
2585 D16
2586 F16
2587 D16
2588 F16
2589 B10
2590 J10
2591 A11
2592 J11
2593 A11
2594 J11
2601 D16
2602 G16
2603 D16
2604 F16
2605 D17
2606 G17
2607 D17
2608 F17
2609 E17
2610 F17
2611 D18
2612 F18
2621 B16
2622 H18
2623 G20
2624 G20
2625 I20
2626 I18
2641 E14
2642 G14
2653 A21
2654 B21
2661 H3
2662 J3
2663 I3
2664 J3
2665 I2
2666 I2
2667 I1
2669 F1
2681 H7
2682 I7
2683 I6
2691 B17
2696 K3
2697 K3
2698 J1
2707 F12
2708 F12
2771 K20
2772 K20
2902 K10
2904 I1
2905 I20
2908 F13
2921 J1
2922 D21
2923 C1
3201 C7
3202 D6
3401 L17
3402 L17
3403 L16
3404 J15
3405 K15
3406 K15
3408 K14
3409 K13
3410 J13
3435 E3
3436 E4
3437 E3
3438 E4
3501 E2
3502 F2
3503 E3
3504 F3
3505 F3
3506 G3
3507 F3
3508 F3
3511 B3
3512 B3
3513 B4
3514 C4
3521 A4
3522 A4
3523 A4
3524 A4
3531 D3
3532 D3
3533 D4
3534 D4
3541 A8
3542 K8
3543 B9
3544 J9
3545 C9
3546 I9
3547 D9
3548 G9
3549 C10
3550 H10
3551 D12
3552 G12
3553 D12
3554 G12
3555 D12
3556 G12
3557 D13
3558 H13
3559 D14
3560 G14
3561 D14
3562 G15
3563 B12
3564 H12
3565 C12
3566 H11
3567 C12
3568 I11
3569 C13
3570 I12
3571 C14
3572 H13
3581 C17
3582 G17
3591 B11
3592 J11
3593 B11
3594 J11
3601 D17
3602 G17
3605 E16
3606 E16
3607 E16
3608 F16
3609 E17
3610 E17
3611 D19
3612 F19
3613 E19
3614 F19
3615 D20
3616 F20
3619 L22
3620 L21
3621 I16
3622 I17
3623 H17
3624 H17
3625 H18
3626 I18
3627 G20
3628 H20
3629 I20
3630 E19
3631 C20
3633 B16
3634 B16
3635 C18
3636 B17
3637 C16
3638 B17
3639 A18
3640 C21
3641 E14
3642 F14
3643 E12
3644 K6
3651 A19
3652 C19
3653 A19
3654 B19
3655 A20
3656 B20
3657 A20
3658 B20
3659 E18
3660 F18
3661 H4
3662 J4
3663 H3
3664 I3
3665 H2
3666 I2
3667 H4
3668 J4
3669 J4
3671 J21
3672 J21
3673 K21
3674 J21
3675 J20
3676 J20
3677 K19
3678 J19
3683 I6
3684 I6
3686 I6
3687 I7
3688 H7
3689 H7
3690 L3
3692 I6
3694 K14
3699 K3
3700 K2
3707 F12
3708 F12
3711 J14
3712 J3
4403 K15
4404 L14
4405 L14
4406 L14
4407 I21
4501 G6
4811 E16
4812 F16
4813 J1
5401 L16
5403 B2
5404 C2
5621 G20
6201 D7
6202 D7
6401 L15
6641 E13
6642 F13
6771 J20
6772 J19
6774 B18
6775 J20
7201 C7
7401 J14
7402 K13
7403 J16
7485 D14
7488 H15
7501 D8
7585 C13
7586 I12
7601-A F18
7601-B D18
7603 E20
7604 F20
7621 H18
7622 H18
7623 I17
7635 A17
7636 C16
7651 A21
7652 B21
7653 A19
7654 B19
7661 H3
7662 I3
7663 I4
7681 I7
7682 I7
7693 L3
7803 A16
9401 J13
9402 L14
9599 L10
9618 B2
9654 C2


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
A B C D E F G H I J K L
TU_Left
TU_Right
CD_Left
CD_Right
+12V_M
EH-B 1506
FE-BT-VK-N 1531
TP_REC_LEFT
TP_REC_RIGHT
GND_A_Tp
TP_LEFT
+12V_A
TP_RIGHT
-CMOS
only for CDR
1532 FE-BT-VK-N
SS_L
Line_L
Line_R
SS_R
1501 YKC21-3418 AUX IN
1502
1505 EH-B
only for Game Sound Port
FE-BT-VK-N
if only for SOLID STATE
1510 FE-BT-VK-N
1503 FE-BT-VK-N
MIC_DET
1504 YKC21-3418 LINE OUT
1691 YKC21-3416
SUBWOOFER OUT
SUB_W
MUTE_SW_FR
LINE_L
LINE_R
-Vkk
SA_IN
+5V6
Mute2
DPL_R
DPL_L
7501 TDA7468
POWER SUPPLY
SOURCE SELECTOR
SUR.
VOLUME I LEFT
TREBLE LEFT
BASS LEFT
VOLUME II LEFT
BASS ALC
LOGIC
IIC BUS REC
VOLUME I RIGHT
TREBLE RIGHT
BASS RIGHT
VOLUME II RIGHT
SIMPLE I.S.
FULL I.S.
ALC_LEVEL
I2C_Clk
I2C_Data
VREF
7201 BC847B
6201 1N4148
7485 BC847B
7488 BC847B
7585 BC847B
7586 BC847B
NJM4556AM 7601-B
NJM4556AM 7601-A
B_REF3
A_HP
HPREF
P...provision
VC_LEFT
VC_RIGHT
7603 BC817-25
7604 BC817-25
1603 FE-BT-VK-N
HP_in_L
HP_in_R
HP_DET
7803 BC847B
7635 BC857B
7636 BC847B
6774 1N4148
MUTE_SW
7653 BC817-25
7654 BC817-25
7651 BC817-25
7652 BC817-25
AMP_LEFT
AMP_RIGHT
VC_OUT_LEFT
VC_OUT_RIGHT
7621 BC847B
7622 BC857B
7623 BC847B
7661 BC847B
7662 BC847B
7663 BC857B
7681 BC857B
7682 BC847B
7693 BC817-25
Mute1
M62320FP 7403
DATA LATCH
REG SHIFT
I/O PORT
TRANSCEIVER I2C BUS
CHIP SELECT
CD_PORE1
CDR_On
HighPower / ALC Enable
DPL_Req
AmOn
7401 BC327-25
7402 BC847B
9401
VCD_ON
ALC_Enable
DVD_ON
+5V_VCD
VCDorCDRon
For DVD sets only
For VCD sets only
For CDR sets only
CDR_On
CD_PORE
CD_PORE1
9599
TAPO
FRONT
1103
1102
6401 1N4148
5401 2u2
6771 1N4148
6772 1N4148
6775 1N4148
ALC_LEVEL
1602 FE-BT-VK-N

C380/37	C500/37	C780/37	C380/21	P750/37			
3644	1K	2K2	3K3	4K7	6K8	8K2	10K	15K

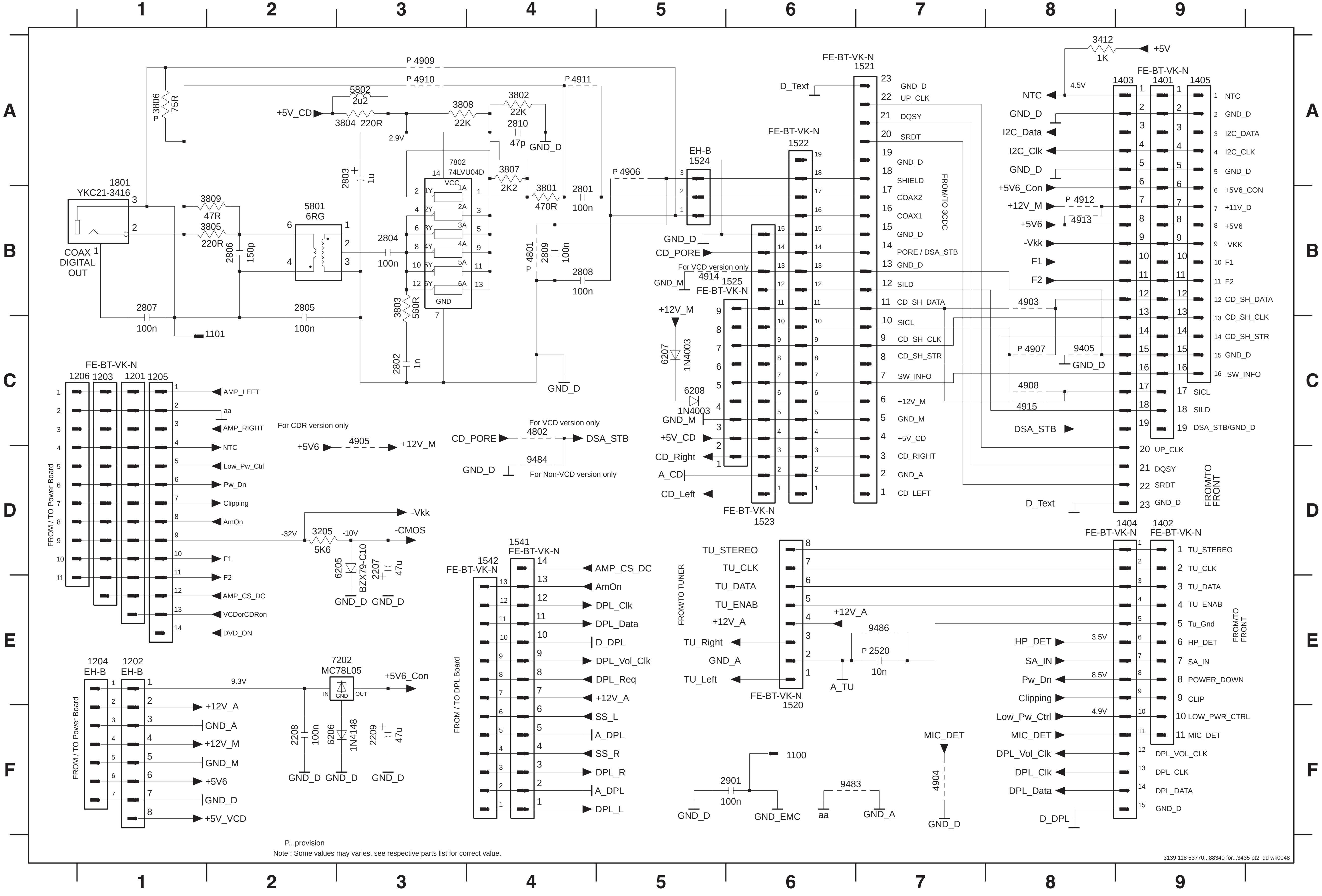
FROM / TO VC
P...provision

D...for DPL
S...for simple I.S.
P...provision
W...Provision for Woox only

Note : Some values may varies, see respective parts list for correct value.

3139 118 53770...88340 for...3435 pt2 dd wk0048

AF9 BOARD - CIRCUIT DIAGRAM (PART 2)

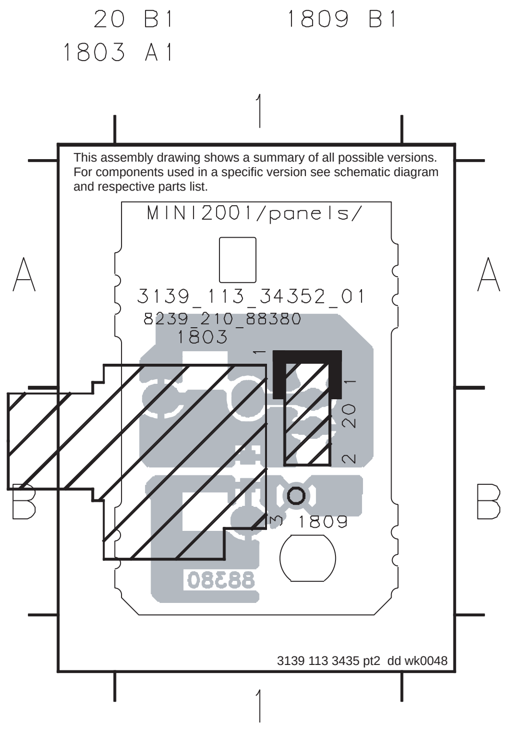

1 2 3 4 5 6 7 8 9
A B C D E F
1801 YKC21-3416
COAX DIGITAL OUT
3806 75R
P 4909
P 4910
P 4911
5802 2u2
3804 220R
+5V_CD
3808 22K
3802 22K
2810 47p
GND_D
2.9V
2803 1u
7802 74LVU04D
VCC GND
1Y 1A 2Y 2A 3Y 3A 4Y 4A 5Y 5A 6Y 6A
3807 2K2
3801 470R
2801 100n
P 4906
3809 47R
3805 220R
2806 150p
5801 6RG
2804 100n
3803 560R
2802 1n
4801 P
2809 100n
2808 100n
2807 100n
2805 100n
1101
EH-B 1524
FE-BT-VK-N 1521
FE-BT-VK-N 1522
FE-BT-VK-N 1523
1525 FE-BT-VK-N
D_Text
GND_D
CD_PORE
For VCD version only
4914
GND_M
+12V_M
6207 1N4003
6208 1N4003
+5V_CD
CD_Right
A_CD
CD_Left
GND_D UP_CLK DQSY SRDT GND_D SHIELD COAX2 COAX1 GND_D PORE / DSA_STB GND_D SILD CD_SH_DATA SICL CD_SH_CLK CD_SH_STR SW_INFO +12V_M GND_M +5V_CD CD_RIGHT GND_A CD_LEFT
FROM/TO 3CDC
3412 1K
+5V
4.5V
FE-BT-VK-N 1403 1401 1405
NTC GND_D I2C_Data I2C_Clk GND_D +5V6_Con +12V_M +5V6 -Vkk F1 F2
P 4912
4913
4903
P 4907
9405
4908
4915
DSA_STB
D_Text
NTC GND_D I2C_DATA I2C_CLK GND_D +5V6_CON +11V_D +5V6 -VKK F1 F2 CD_SH_DATA CD_SH_CLK CD_SH_STR GND_D SW_INFO SICL SILD DSA_STB/GND_D UP_CLK DQSY SRDT GND_D
FROM/TO FRONT
FE-BT-VK-N 1206 1203 1201 1205
FROM / TO Power Board
AMP_LEFT aa AMP_RIGHT NTC Low_Pw_Ctrl Pw_Dn Clipping AmOn F1 F2 AMP_CS_DC VCDorCDRon DVD_ON
For CDR version only
+5V6 4905 +12V_M
For VCD version only
CD_PORE 4802 DSA_STB
GND_D 9484
For Non-VCD version only
-Vkk
-32V 3205 5K6 -10V -CMOS
6205 BZX79-C10
2207 47u
1204 EH-B
1202 EH-B
9.3V
+12V_A GND_A +12V_M GND_M +5V6 GND_D +5V_VCD
7202 MC78L05
IN GND OUT
+5V6_Con
2208 100n
6206 1N4148
2209 47u
1541 FE-BT-VK-N
1542 FE-BT-VK-N
FROM / TO DPL Board
AMP_CS_DC AmOn DPL_Clk DPL_Data D_DPL DPL_Vol_Clk DPL_Req +12V_A SS_L A_DPL SS_R DPL_R A_DPL DPL_L
FROM/TO TUNER
TU_STEREO TU_CLK TU_DATA TU_ENAB +12V_A TU_Right GND_A TU_Left
FE-BT-VK-N 1520
9486
P 2520 10n
A_TU
1100
2901 100n
GND_EMC
9483
aa GND_A
MIC_DET
4904
1404 FE-BT-VK-N
1402 FE-BT-VK-N
TU_STEREO TU_CLK TU_DATA TU_ENAB Tu_Gnd HP_DET SA_IN POWER_DOWN CLIP LOW_PWR_CTRL MIC_DET DPL_VOL_CLK DPL_CLK DPL_DATA GND_D
HP_DET 3.5V SA_IN Pw_Dn 8.5V Clipping Low_Pw_Ctrl 4.9V MIC_DET DPL_Vol_Clk DPL_Clk DPL_Data D_DPL
3139 118 53770...88340 for...3435 pt2 dd wk0048

P...provision

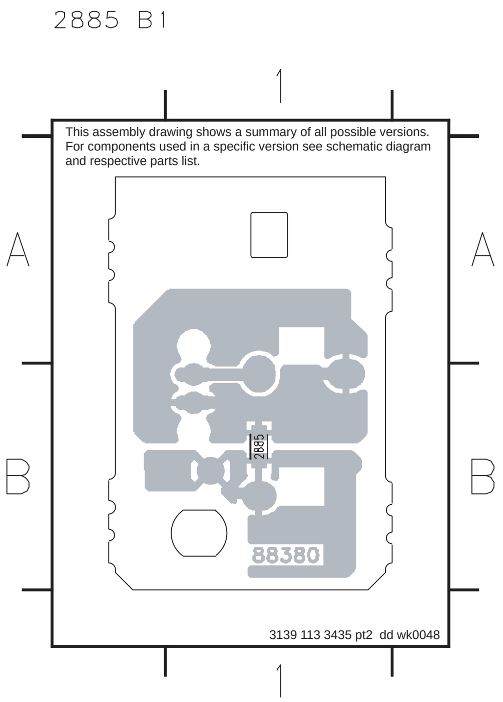
Note : Some values may varies, see respective parts list for correct value.

1100	F6
1101	C2
1201	C1
1202	E1
1203	C1
1204	E1
1205	C1
1206	C1
1401	A9
1402	D9
1403	A9
1404	D9
1405	A9
1520	E6
1521	A7
1522	A6
1523	D6
1524	A5
1525	B5
1541	D4
1542	D4
1801	A1
2207	D3
2208	F2
2209	F3
2520	E7
2801	B4
2802	C3
2803	A3
2804	B3
2805	B2
2806	B2
2807	B1
2808	B4
2809	B4
2810	A4
2901	F6
3205	D2
3412	A8
3801	B4
3802	A4
3803	B3
3804	A3
3805	B2
3806	A1
3807	A4
3808	A3
3809	B2
4801	B4
4802	C4
4903	B8
4904	F7
4905	C3
4906	A5
4907	C8
4908	C8
4909	A3
4910	A3
4911	A4
4912	B8
4913	B8
4914	B5
4915	C8
5801	B2
5802	A3
6205	D3
6206	F2
6207	C5
6208	C5
7202	E3
7802	A3
9405	C8
9483	F6
9484	D4
9486	E7

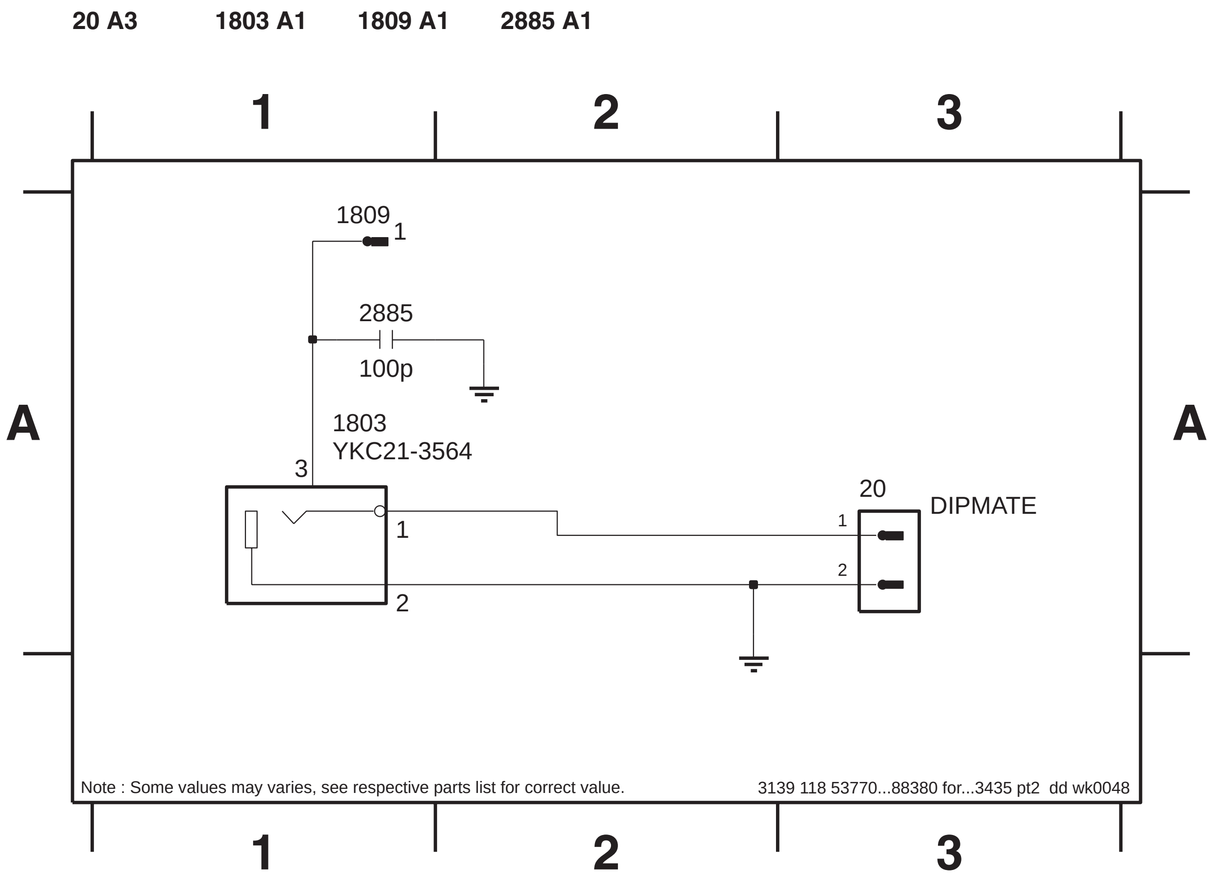
VIDEO OUT CINCH BOARD - COMPONENT LAYOUT


20 B1
1809 B1
1803 A1
1
A
B
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.
MINI2001/panels/
3139_113_34352_01
8239_210_88380
1803
1809
20
1
2
88380
3139 113 3435 pt2 dd wk0048

VIDEO OUT CINCH BOARD - CHIP LAYOUT


2885 B1
1
A
B
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.
2885
88380
3139 113 3435 pt2 dd wk0048

VIDEO OUT CINCH PART - CIRCUIT DIAGRAM


20 A3
1803 A1
1809 A1
2885 A1
1
2
3
A
1809
2885
100p
1803
YKC21-3564
3
1
2
20
DIPMATE
Note : Some values may varies, see respective parts list for correct value.
3139 118 53770...88380 for...3435 pt2 dd wk0048

ELECTRICAL PARTS LIST - AF9 BOARD

MISCELLANEOUS

1201	4822 267 10738	Flex Connector 13P
1401	4822 265 11553	Flex Connector 19P
1402	4822 267 11039	Flex Connector 11P
1501	4822 265 20553	Cinch Socket - Aux in
1504	4822 265 20553	Cinch Socket - Line out
1520	4822 265 11515	Flex Connector 8P
1522	4822 265 11553	Flex Connector 19P
1531	4822 267 10953	Flex Connector 7P
1603	4822 267 10733	Flex Connector 4P
1801	4822 267 31729	Cinch Socket - Digital out

CAPACITORS

2201	4822 124 40207	100µF 20% 25V
2202	4822 124 81151	22µF 50V
2203	4822 124 40433	47µF 20% 25V
2204	4822 124 40196	220µF 20% 16V
2205	4822 126 14238	2,2nF 50V
2206	4822 126 14494	22nF 10% 25V
2207	4822 124 40433	47µF 20% 25V
2208	4822 126 14305	100nF 10% 16V
2209	4822 124 41751	47µF 20% 50V
2401	4822 122 31765	100pF 2% 63V
2402	4822 122 31765	100pF 2% 63V
2403	4822 126 14305	100nF 10% 16V
2404	4822 126 14305	100nF 10% 16V
2501	4822 122 31765	100pF 2% 63V
2502	4822 122 31765	100pF 2% 63V
2503	4822 124 21913	1µF 20% 63V
2504	4822 124 21913	1µF 20% 63V
2505	4822 122 31765	100pF 2% 63V
2506	4822 122 31765	100pF 2% 63V
2507	4822 126 14305	100nF 10% 16V
2511	4822 124 21913	1µF 20% 63V
2512	4822 124 21913	1µF 20% 63V
2513	3198 016 31020	1nF 25V
2514	3198 016 31020	1nF 25V
2515	4822 122 31765	100pF 2% 63V
2516	4822 122 31765	100pF 2% 63V
2520	4822 121 51387	10nF 20% 16V
2521	4822 126 14305	100nF 10% 16V
2522	4822 126 14305	100nF 10% 16V
2523	4822 122 31765	100pF 2% 63V
2524	4822 122 31765	100pF 2% 63V
2531	4822 124 40769	4,7µF 20% 100V
2532	4822 124 40769	4,7µF 20% 100V
2533	4822 122 31765	100pF 2% 63V
2534	4822 122 31765	100pF 2% 63V
2535	4822 124 40769	4,7µF 20% 100V
2536	4822 124 40769	4,7µF 20% 100V
2541	4822 124 41407	0,47µF 20% 63V
2542	4822 124 41407	0,47µF 20% 63V
2543	5322 126 11583	10nF 10% 50V
2544	5322 126 11583	10nF 10% 50V
2546	4822 121 43856	4,7nF 5% 250V
2547	5322 126 11579	3,3nF 10% 63V
2548	5322 126 11579	3,3nF 10% 63V
2565	4822 121 43856	4,7nF 5% 250V
2567	3198 016 31020	1nF 25V
2568	3198 016 31020	1nF 25V
2589	4822 121 42408	220nF 5% 63V
2590	4822 121 42408	220nF 5% 63V
2591	5322 121 42661	330nF 5% 63V
2592	5322 121 42661	330nF 5% 63V
2593	4822 121 51252	470nF 5% 63V
2594	4822 121 51252	470nF 5% 63V
2601	3198 016 31020	1nF 25V
2602	3198 016 31020	1nF 25V
2603	4822 124 81151	22µF 50V
2604	4822 124 81151	22µF 50V
2605	4822 122 31765	100pF 2% 63V
2606	4822 122 31765	100pF 2% 63V
2607	4822 126 13881	470pF 5% 50V
2608	4822 126 13881	470pF 5% 50V
2609	4822 126 14508	180pF 5% 50V
2610	4822 126 14508	180pF 5% 50V
2611	4822 124 81151	22µF 50V
2612	4822 124 81151	22µF 50V
2621	4822 124 81151	22µF 50V
2622	4822 122 31765	100pF 2% 63V
2623	4822 124 40433	47µF 20% 25V
2624	3198 017 42230	22nF 50V
2625	4822 124 40207	100µF 20% 25V
2626	4822 124 81151	22µF 50V
2641	3198 016 31020	1nF 25V
2642	3198 016 31020	1nF 25V
2653	4822 122 31765	100pF 2% 63V
2654	4822 122 31765	100pF 2% 63V
2661	4822 124 21913	1µF 20% 63V
2662	4822 124 21913	1µF 20% 63V
2663	3198 016 31020	1nF 25V
2664	3198 016 31020	1nF 25V
2665	4822 126 13193	4,7nF 10% 63V
2666	4822 126 13193	4,7nF 10% 63V
2667	4822 126 14305	100nF 10% 16V
2669	4822 126 14305	100nF 10% 16V
2681	4822 124 40433	47µF 20% 25V
2682	4822 122 33752	15pF 5% 50V
2683	4822 126 14305	100nF 10% 16V
2691	4822 122 31765	100pF 2% 63V
2707	4822 122 31765	100pF 2% 63V
2708	4822 122 31765	100pF 2% 63V
2771	4822 124 41407	0,47µF 20% 63V
2801	4822 126 14305	100nF 10% 16V
2802	3198 016 31020	1nF 25V

ELECTRICAL PARTS LIST - AF9 BOARD

CAPACITORS

2803	4822 124 40756	1µF 20% 100V
2804	4822 126 14305	100nF 10% 16V
2805	4822 126 14305	100nF 10% 16V
2806	4822 122 33753	150pF 5% 50V
2807	4822 126 14305	100nF 10% 16V
2808	4822 126 14305	100nF 10% 16V
2809	4822 126 14305	100nF 10% 16V
2810	4822 122 33777	47pF 5% 63V
2901	4822 126 12882	100nF +80/-20% 50V
2902	3198 017 44740	470nF 10V
2905	3198 017 42230	22nF 50V
2908	4822 126 14305	100nF 10% 16V

RESISTORS

3201	4822 117 12968	820R 5% 0,62W
3202	4822 051 30151	150R 5% 0,062W
3205	4822 116 52289	5k6 5% 0,5W
3401	4822 051 30471	470R 5% 0,062W
3402	4822 051 30471	470R 5% 0,062W
3403	4822 116 52175	100R 5% 0,5W
3405	4822 051 30103	10k 5% 0,062W
3408	4822 051 30103	10k 5% 0,062W
3409	4822 051 30562	5k6 5% 0,063W
3412	4822 050 11002	1k 1% 0,4W
3435	4822 050 11002	1k 1% 0,4W
3436	4822 050 11002	1k 1% 0,4W
3501	4822 051 30472	4k7 5% 0,062W
3502	4822 051 30472	4k7 5% 0,062W
3503	4822 051 30123	12k 5% 0,062W
3504	4822 051 30123	12k 5% 0,062W
3505	4822 051 30153	15k 5% 0,062W
3506	4822 051 30153	15k 5% 0,062W
3511	4822 117 12968	820R 5% 0,62W
3512	4822 117 12968	820R 5% 0,62W
3513	4822 051 30102	1k 5% 0,062W
3514	4822 051 30102	1k 5% 0,062W
3521	4822 051 30102	1k 5% 0,062W
3522	4822 051 30102	1k 5% 0,062W
3531	4822 051 30152	1k5 5% 0,062W
3532	4822 051 30152	1k5 5% 0,062W
3533	4822 051 30273	27k 5% 0,062W
3534	4822 116 52264	27k 5% 0,5W
3543	4822 117 12925	47k 1% 0,063W
3544	4822 117 12925	47k 1% 0,063W
3545	4822 051 30562	5k6 5% 0,063W
3546	4822 051 30562	5k6 5% 0,063W
3547	4822 051 30103	10k 5% 0,062W
3548	4822 051 30103	10k 5% 0,062W
3549	4822 051 30183	18k 5% 0,062W
3550	4822 051 30183	18k 5% 0,062W
3591	4822 117 12902	8k2 1% 0,063W
3592	4822 117 12902	8k2 1% 0,063W
3593	4822 051 30562	5k6 5% 0,063W
3594	4822 051 30562	5k6 5% 0,063W
3601	4822 116 52238	12k 5% 0,5W
3602	4822 116 52238	12k 5% 0,5W
3607	4822 051 30682	6k8 5% 0,062W
3608	4822 116 83961	6k8 5%
3609	4822 051 30273	27k 5% 0,062W
3610	4822 051 30273	27k 5% 0,062W
3611	4822 051 30479	47R 5% 0,062W
3612	4822 051 30479	47R 5% 0,062W
3613	4822 051 30102	1k 5% 0,062W
3614	4822 051 30102	1k 5% 0,062W
3615	4822 051 30339	33R 5% 0,062W
3616	4822 051 30339	33R 5% 0,062W
3621	4822 051 30103	10k 5% 0,062W
3622	4822 051 30103	10k 5% 0,062W
3623	4822 051 30102	1k 5% 0,062W
3624	4822 051 30562	5k6 5% 0,063W
3625	4822 051 30472	4k7 5% 0,062W
3626	4822 051 30472	4k7 5% 0,062W
3627	4822 052 10109 ⚠	10R 5% 0,33W
3628	4822 116 52283	4k7 5% 0,5W
3629	4822 051 30472	4k7 5% 0,062W
3631	4822 050 11002	1k 1% 0,4W
3633	4822 051 30102	1k 5% 0,062W
3634	4822 051 30562	5k6 5% 0,063W
3635	4822 051 30103	10k 5% 0,062W
3636	4822 051 30472	4k7 5% 0,062W
3637	4822 051 30103	10k 5% 0,062W
3638	4822 051 30472	4k7 5% 0,062W
3640	4822 116 52289	5k6 5% 0,5W
3641	4822 051 30221	220R 5% 0,062W
3642	4822 051 30221	220R 5% 0,062W
3644	4822 117 12902	8k2 1% 0,063W /22
3644	4822 051 30332	3k3 5% 0,062W /37
3651	4822 051 30102	1k 5% 0,062W
3652	4822 051 30102	1k 5% 0,062W
3653	4822 051 30102	1k 5% 0,062W
3654	4822 051 30102	1k 5% 0,062W
3655	4822 051 30102	1k 5% 0,062W
3656	4822 051 30102	1k 5% 0,062W
3657	4822 051 30102	1k 5% 0,062W
3658	4822 051 30102	1k 5% 0,062W
3661	4822 051 30272	2k7 5% 0,062W
3662	4822 051 30272	2k7 5% 0,062W
3663	4822 116 52256	2k2 5% 0,5W
3664	4822 051 30222	2k2 5% 0,062W
3665	4822 051 30471	470R 5% 0,062W
3666	4822 051 30471	470R 5% 0,062W
3668	4822 051 30472	4k7 5% 0,062W
3669	4822 051 30103	10k 5% 0,062W
3683	4822 051 30154	150k 5% 0,062W

ELECTRICAL PARTS LIST - AF9 BOARD

RESISTORS

3684	4822 051 30154	150k 5% 0,062W
3686	4822 117 12864	82k 5% 0,6W
3687	4822 117 11817	1k2 1% 1/16W
3688	4822 051 30391	390R 5% 0,062W
3689	4822 051 30151	150R 5% 0,062W
3692	4822 051 30334	330k 5% 0,062W
3694	4822 051 30222	2k2 5% 0,062W
3707	4822 051 30102	1k 5% 0,062W
3708	4822 051 30102	1k 5% 0,062W
3711	4822 051 30562	5k6 5% 0,063W
3801	4822 051 30471	470R 5% 0,062W
3802	4822 051 30223	22k 5% 0,062W
3803	4822 051 30561	560R 5% 0,062W
3804	4822 116 83872	220R 5% 0,5W
3805	4822 051 30221	220R 5% 0,062W
3807	4822 051 30222	2k2 5% 0,062W
3808	4822 051 30223	22k 5% 0,062W
3809	4822 051 30479	47R 5% 0,062W
4100	4822 051 30008	0R Jumper 0603
4101	4822 051 30008	0R Jumper 0603
4102	4822 051 30008	0R Jumper 0603
4104	4822 051 30008	0R Jumper 0603
4108	4822 051 30008	0R Jumper 0603
4110	4822 051 30008	0R Jumper 0603
4111	4822 051 30008	0R Jumper 0603
4112	4822 051 30008	0R Jumper 0603
4113	4822 051 30008	0R Jumper 0603
4114	4822 051 30008	0R Jumper 0603
4115	4822 051 30008	0R Jumper 0603
4116	4822 051 30008	0R Jumper 0603
4118	4822 051 30008	0R Jumper 0603
4119	4822 051 30008	0R Jumper 0603
4122	4822 051 30008	0R Jumper 0603
4124	4822 051 30008	0R Jumper 0603
4125	4822 051 30008	0R Jumper 0603
4126	4822 051 30008	0R Jumper 0603
4127	4822 051 30008	0R Jumper 0603
4128	4822 051 30008	0R Jumper 0603
4130	4822 051 30008	0R Jumper 0603
4132	4822 051 30008	0R Jumper 0603
4133	4822 051 30008	0R Jumper 0603
4134	4822 051 30008	0R Jumper 0603
4135	4822 051 30008	0R Jumper 0603
4137	4822 051 30008	0R Jumper 0603
4138	4822 051 30008	0R Jumper 0603
4139	4822 051 30008	0R Jumper 0603
4141	4822 051 30008	0R Jumper 0603
4142	4822 051 30008	0R Jumper 0603
4143	4822 051 30008	0R Jumper 0603
4144	4822 051 30008	0R Jumper 0603
4145	4822 051 30008	0R Jumper 0603
4146	4822 051 30008	0R Jumper 0603
4147	4822 051 30008	0R Jumper 0603
4403	4822 051 30008	0R Jumper 0603
4501	4822 051 30008	0R Jumper 0603
4811	4822 051 30008	0R Jumper 0603
4812	4822 051 30008	0R Jumper 0603
4903	4822 051 30008	0R Jumper 0603
4904	4822 051 30008	0R Jumper 0603
4908	4822 051 30008	0R Jumper 0603
4913	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5621	4822 157 62552	Coil 2,2µH 5%
5801	2422 536 00019	Transformer 6RG

DIODES

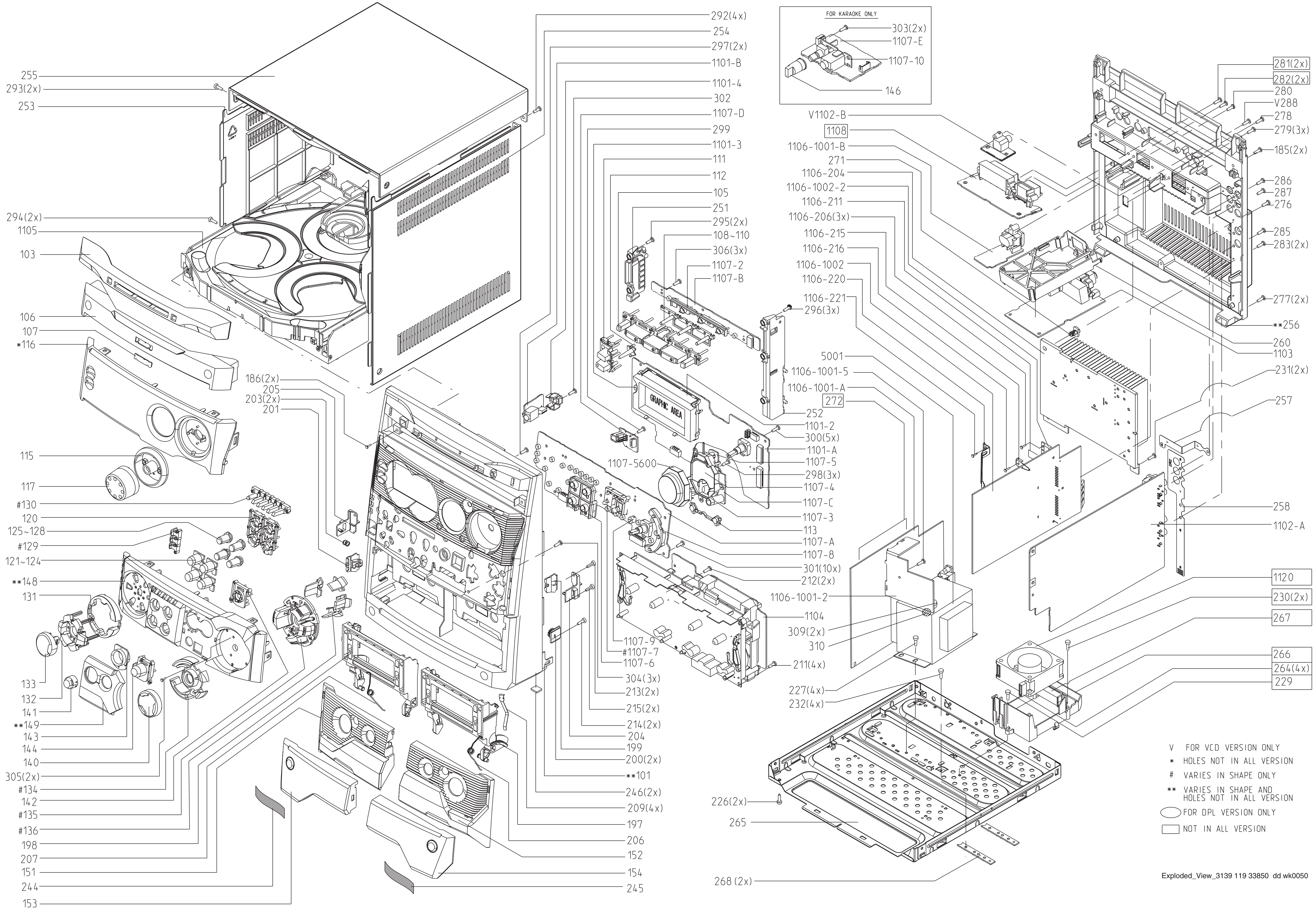
6201	4822 130 30621	1N4148
6202	4822 130 30862	BZX55-C9V1
6205	4822 130 61219	BZX79-C10
6206	4822 130 30621	1N4148
6207	4822 130 31878	1N4003G
6208	4822 130 31878	1N4003G
6401	4822 130 30621	1N4148
6774	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7201	5322 130 60159	BC847B
7202	4822 209 72042	MC78L05ACP
7401	4822 130 41246	BC327-25
7402	5322 130 60159	BC847B
7403	4822 209 17345	M62320FP
7501	9322 150 74668	TDA7468D
7601	4822 209 31378	NJM4556AM
7603	4822 130 42804	BC817-25
7604	4822 130 42804	BC817-25
7621	5322 130 60159	BC847B
7622	4822 130 60373	BC857B
7623	5322 130 60159	BC847B
7635	4822 130 60373	BC857B
7636	5322 130 60159	BC847B
7651	4822 130 42804	BC817-25
7652	4822 130 42804	BC817-25
7653	4822 130 42804	BC817-25
7654	4822 130 42804	BC817-25
7661	5322 130 60159	BC847B
7662	5322 130 60159	BC847B
7663	4822 130 60373	BC857B
7681	4822 130 60373	BC857B
7682	5322 130 60159	BC847B
7802	4822 209 17235	74LVU04D
7803	5322 130 60159	BC847B

Note : Only the parts mentioned in this list are normal service spare parts.

SET MECHANICAL EXPLODED VIEW


255
293(2x)
253
294(2x)
1105
103
106
107
*116
115
117
#130
120
125~128
#129
121~124
**148
131
133
132
141
**149
143
144
140
305(2x)
#134
142
#135
#136
198
207
151
244
153
186(2x)
205
203(2x)
201
292(4x)
254
297(2x)
1101-B
1101-4
302
1107-D
299
1101-3
111
112
105
251
295(2x)
108~110
306(3x)
1107-2
1107-B
296(3x)
252
1101-2
300(5x)
1101-A
1107-5600
1107-5
298(3x)
1107-4
1107-C
1107-3
113
1107-A
1107-8
301(10x)
212(2x)
1104
211(4x)
1107-9
#1107-7
1107-6
304(3x)
213(2x)
215(2x)
214(2x)
204
199
200(2x)
**101
246(2x)
209(4x)
197
206
152
154
245
FOR KARAOKE ONLY
303(2x)
1107-E
1107-10
146
V1102-B
1108
1106-1001-B
271
1106-204
1106-1002-2
1106-211
1106-206(3x)
1106-215
1106-216
1106-1002
1106-220
1106-221
5001
1106-1001-5
1106-1001-A
272
1106-1001-2
309(2x)
310
227(4x)
232(4x)
226(2x)
265
268(2x)
281(2x)
282(2x)
280
V288
278
279(3x)
185(2x)
286
287
276
285
283(2x)
277(2x)
**256
260
1103
231(2x)
257
258
1102-A
1120
230(2x)
267
266
264(4x)
229
GRAPHIC AREA
V FOR VCD VERSION ONLY
* HOLES NOT IN ALL VERSION
# VARIES IN SHAPE ONLY
** VARIES IN SHAPE AND HOLES NOT IN ALL VERSION
FOR DPL VERSION ONLY
NOT IN ALL VERSION

Exploded_View_3139 119 33850 dd wk0050

MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT

0101	3139 118 15430	Cabinet Front /22
0101	3139 118 15420	Cabinet Front /37
0103	3139 118 14320	Window CDC
0105	3139 118 14330	Button Set CDC Select
0106	3139 118 14340	Cover Tray CDC
0107	4822 454 13408	Badge Philips
0111	3139 118 14350	Button Standby/Eco Power /22
0111	3139 118 14870	Button Power /37
0115	3139 118 14370	Cover Ring Volume/VU Chrome
0116	3139 118 15210	Window Display /22
0116	3139 118 14830	Window Display /37
0117	3139 118 14380	Knob Volume Rotary
0120	3139 114 72360	Frame Button Set Source Select
0121	3139 118 14390	Button Cap Source-CD
0122	3139 118 14400	Button Cap Source-Tuner
0123	3139 118 14410	Button Cap Source-Tape
0124	3139 118 14420	Button Cap Source-Aux
0125	3139 114 72410	Lightguide Source-CD
0126	3139 114 72420	Lightguide Source-Tuner
0127	3139 114 72430	Lightguide Source-Tape
0128	3139 114 72440	Lightguide Source-Aux
0129	3139 118 14720	Button Set RDS/NEWS /22
0130	3139 118 14440	Button Prog/Time-Disp
0131	3139 118 15450	Cover Ring Func Control
0132	3139 118 15460	Button Set Func Control
0133	3139 118 14470	Cap Function Control
0134	3139 118 15170	Cover Ring DSC/VAC/IS
0135	3139 118 14770	Button DSC/VAC/IS
0140	3139 118 14500	Knob Jog Rotary
0141	3139 118 14850	Button WOOX Plus
0142	3139 114 72470	Frame Button Set WOOX
0144	3139 118 14840	Button Plus WOOX Level
0148	3139 118 15700	Cover Orn Control /22
0148	3139 118 15690	Cover Orn Control /37
0149	3139 118 14810	Cover Control WOOX
0151	3139 118 15480	Cover Cassette Left
0152	3139 118 15490	Cover Cassette Right
0153	3139 118 14560	Lens Cassette Left
0154	3139 118 14570	Lens Cassette Right
0197	3139 114 68630	Door Cassette Right
0198	3139 114 68620	Door Cassette Left
0199	4822 402 10621	Push-Catch
0200	4822 529 10322	Damper Assembly
0201	3139 114 68640	Push Catch Left
0203	4822 492 11344	Spring Compression
0204	4822 402 11246	Bracket Right
0205	4822 402 11245	Bracket Left
0206	3139 111 01380	Spring Torsion Right
0207	3139 111 01390	Spring Torsion Left
0209	4822 492 42787	Spring Cassette
0246	4822 462 40683	Foot Rubber (SQ)
0251	3139 114 72750	Bracket CDC Left
0252	3139 114 72760	Bracket CDC Right
0253	3139 114 73570	Panel Left
0254	3139 114 73580	Panel Right
0255	3139 114 73590	Cover Top
0256	3139 114 72790	Panel Rear
0271	3139 114 71010	Stopper Heatsink
0309	4822 462 40683	Plate (Foot)
0310	4822 462 40683	Plate (Foot)
0350	3139 118 78320	L/R Loudspeaker Box /22
0350	3139 118 78310	L/R Loudspeaker Box /37
0351	4822 303 50063	FM Aerial /22
0351	4822 320 11094	FM Antenna Wire /37
0356	3139 118 78260	Remote Control
0384	4822 303 50082	AM Frame Aerial
0385	4822 321 10249	⚠ Mains Cord /22
0385	4822 321 11466	⚠ Mains Cord /37
0387	3139 115 20580	Instruction For Use /22
0387	3139 115 20570	Instruction For Use /37
1202	3139 110 35350	FFC Foil 11P/220/11P AD
1204	3139 110 34600	FFC Foil 07P/280/07P AD
1401	3139 110 34970	FFC Foil 19P/180/19P AD
1402	3139 110 34610	FFC Foil 11P/180/11P AD
1403	3139 110 35130	FFC Foil 06P/180/06P AD
1404	3139 110 35280	FFC Foil 10P/120/10P AD
1405	3139 110 35000	FFC Foil 08P/120/08P AD
1406	4822 320 12752	FFC Foil 07P/180/07P AD
1407	3139 110 34010	FFC Foil 06P/140/06P AD
1501	3139 110 35120	FFC Foil 04P/400/04P BD
1503	3139 110 34910	FFC Foil 19P/120/19P BD
1601	3139 110 35050	FFC Foil 08P/220/08P AD
1702	4822 320 12654	FFC Foil 07P/220/07P AD
5001	3103 308 30630	⚠ Mains Transformer /22
5001	3103 308 30620	⚠ Mains Transformer /37

Note : Only the parts mentioned in this list are normal service spare parts.

SCREW LISTS - MAIN UNIT

185	D3 x 10
186	D3 x 12
211	D3 x 12
212	D3 x 12
213	D3 x 12
214	M3 x 12
215	M3 x 12
226	M3 x 6
227	M3 x 6
231	M3 x 6
232	M3 x 6
276	M3 x 6
277	M3 x 10
278	D3 x 12
279	D3 x 12
280	D3 x 12
283	D3 x 12
285	D3 x 12
286	D3 x 12
287	D3 x 12
292	M3 x 12
293	M3 x 12
294	M3 x 6
295	D3 x 12
296	D3 x 12
297	D2 x 8
298	D3 x 10
299	D3 x 10
300	D3 x 12
301	D3 x 12
302	D3 x 12
304	D3 x 12
305	D2 x 8
306	D3 x 12